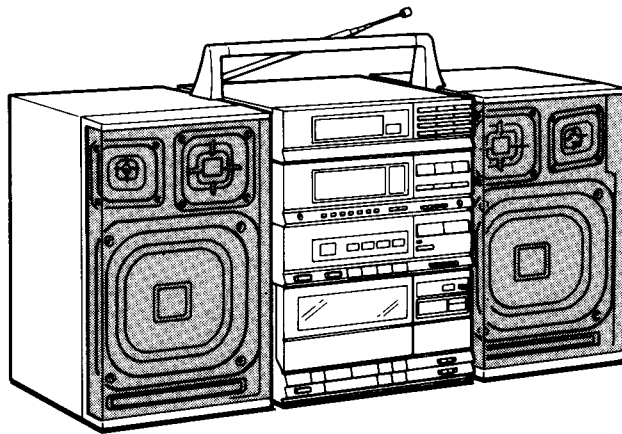


FH-215R/1215CD

SERVICE MANUAL

FH-215R:
AEP Model
E Model

FH-1215CD:
UK Model



'Dolby' and the double-D symbol are the trade marks of Dolby laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

- FH-215R consists of ST-215, TA-215, TC-215R, APM-215.
- FH-1215CD consists of ST-215, TA-215, TC-215R, CDP-17F.

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FH-215R/1215CD

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EXPLODED VIEW AND PARTS LIST	10

See CDP-17F SERVICE MANUAL Separately issued for the information of CDP-17F.

ST-215 (AEP, UK Model)

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REPLACEMENT AND DIODE D314, 315	
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— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



COMPACT HI-DENSITY
COMPONENT SYSTEM
SONY®

AUD

ST-215 (E Model)

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TA-215

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TC-215R

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APM-215

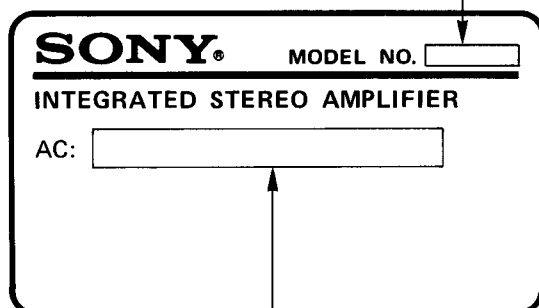
	<u>Page</u>
1. DISASSEMBLY	APM-1
2. WIRING DIAGRAM	APM-1
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MODEL IDENTIFICATION

— Specification Label —

TA-215

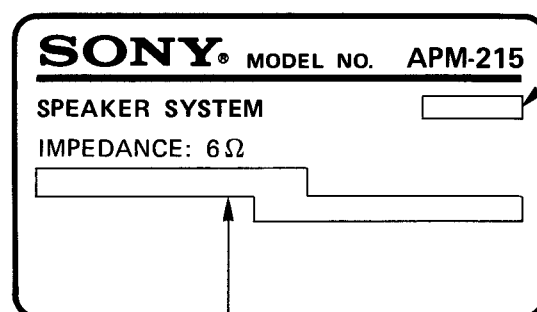
TA-215 E, Saudi Arabia, AEP, UK Model
FH-215R G-AEP Model



120/220/240 V ~ 50/60 Hz 110 W E, Saudi Arabia Model
220 V ~ 50/60 Hz 110 W AEP Model
240 V ~ 50 Hz 220 W UK Model

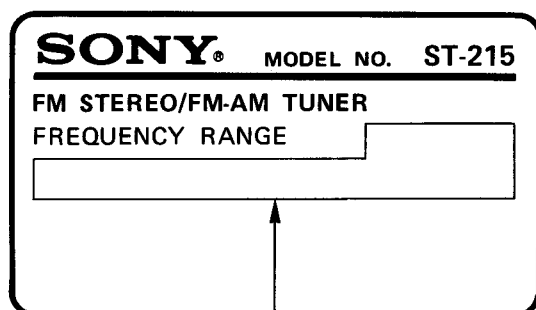
APM-215

E2 E2 Model
BLANK E3, Saudi Arabia, AEP, UK Model



POWER HANDLING CAPACITY:
Music 90 W DIN AEP, UK Model
BLANK E2, E3, Saudi Arabia Model

ST-215



FM: 87.5 – 108 MHz	SW ₂ : 9.5 – 21.75 MHz	} E, Saudi Arabia Model
SW ₁ : 3.2 – 7.3 MHz	MW: 531 – 1,602 kHz	
FM: 87.5 – 108 MHz	MW: 522 – 161 Hz	} AEP, UK Model
LW: 144 – 288 kHz		

SPECIFICATIONS

ST-215 Tuner

System FM stereo, FM/AM superheterodyne tuner
Quartz-locked PLL digital synthesizer system

FM tuner section

Tuning range 87.5 – 108 MHz
Antenna Telescopic antenna
Antenna terminals 75 ohms unbalanced
Intermediate frequency 10.7 MHz
Usable sensitivity $2.3 \mu\text{V}$ (S/N = 30 dB/75 ohms)
Signal-to-noise ratio 78 dB (mono) 70 dB (stereo)
Harmonic distortion at 1 kHz 0.2% (mono) 0.5% (stereo)
Separation at 1 kHz 40 dB
Selectivity at 400 kHz 55 dB

MW/LW tuner section (for AEP, UK model)

	MW	LW
Tuning range	522 – 1,611 kHz	144 – 288 kHz
Antenna	Built-in ferrite bar antenna External antenna terminal	
Intermediate frequency	450 kHz	
Usable sensitivity	Built-in ferrite bar antenna	250 $\mu\text{V}/\text{m}$ (999 kHz)
	External antenna	500 $\mu\text{V}/\text{m}$ (230 kHz)
Signal-to-noise ratio	52 dB (50 mV/m)	
Harmonic distortion	0.3% (50 mV/m, 400 Hz)	

SW/MW tuner section (for E model)

	SW 1	SW 2	MW
Tuning range	3.2 – 7.3 MHz	9.5 – 21.75 MHz	531 – 1,602 kHz (at 9 kHz step) 530 – 1,610 kHz (at 10 kHz step)
Antenna	Telescopic antenna		Built-in ferrite bar antenna
	External antenna terminal		
Intermediate frequency	450 kHz		
Usable sensitivity	Built-in ferrite bar antenna		250 $\mu\text{V}/\text{m}$ (999 or 1,000 kHz)
	External antenna	23 μV (5 MHz) 30 μV (15 MHz)	100 μV (999 or 1,000 kHz)
Signal-to-noise ratio	50 dB (5 mV)		52 dB (50 mV/m)
Harmonic distortion	0.3% (5 mV, 400 Hz)		0.3% (50 mV/m, 400 Hz)

General

Dimensions Approx. 215 × 55 × 240 mm (w/h/d)
(8 $\frac{1}{2}$ × 2 $\frac{1}{4}$ × 9 $\frac{1}{2}$ inches)
incl. projecting parts and controls
Weight Approx. 0.9 kg (2 lb) net

TC-215R Cassette deck

Recording system 4-track 2-channel stereo
Frequency response DOLBY NR OFF (DIN)
With TYPE IV cassettes (Sony METAL-S)
50 – 15,000 Hz (± 3 dB)
With TYPE II cassettes (Sony UCX)
50 – 14,000 Hz (± 3 dB)
With TYPE I cassettes (Sony HF-S)
50 – 13,000 Hz (± 3 dB)
Wow and flutter 0.07% WRMS (NAB)
 $\pm 0.2\%$ (DIN)
Dimensions Approx. 215 × 120 × 250 mm (w/h/d)
(8 $\frac{1}{2}$ × 4 $\frac{3}{4}$ × 9 $\frac{7}{8}$ inches)
incl. projecting parts and controls
Weight Approx. 2.1 kg (4 lb 11 oz) net

TA-215 Amplifier

Continuous RMS power output (AEP, UK model)
45 + 45 watts
(6 ohms, at 1 kHz, 5% THD)
35 + 35 watts
(6 ohms, 40 Hz – 20 kHz, 1% THD)
Music power output 160 W (6 ohms) (AEP model)
Peak music power output 380 W (6 ohms) (E model)

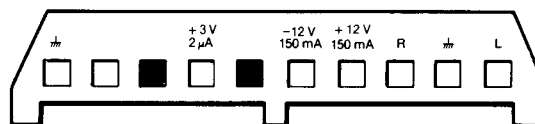
Inputs	Sensitivity	Impedance
PHONO (phono jacks)	2.5 mV	50 kilohms
CD/AUX (phono jacks)	450 mV	50 kilohms
MIC (stereo minijack)	1 mV	600 ohms

Outputs

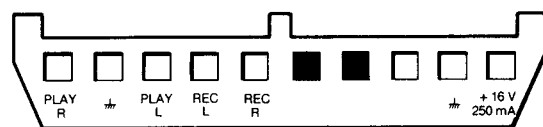
HEADPHONES (stereo minijack)	Accepts headphones of 8 ohms or more
SPEAKER	Accepts speakers of 6 to 16 ohms

Frequency response

PHONO: RIAA curve ± 0.5 dB
CD/AUX: 40 Hz – 30 kHz ± 0.3 dB
MIC: 100 Hz – 10 kHz ± 0.3 dB
Dimensions Approx. 215 × 120 × 280 mm (w/h/d)
(8 $\frac{1}{2}$ × 4 $\frac{3}{4}$ × 11 $\frac{1}{8}$ inches)
incl. projecting parts and controls
Weight Approx. 4 kg (8 lb 14 oz) net
10-pin DC output connector of TA-215 to ST-215



10-pin DC output connector of TA-215 to TC-215R



APM-215 Speaker (for AEP, E model)

Speaker system 3 way speaker system
Speaker units Woofer: 134 cm² APM type
Tweeter: 5 cm dia, cone type
Super tweeter: 3.5 cm dia, ceramic type
Enclosure type Bass reflex
Frequency range 60 Hz – 20 kHz
Sensitivity 90 dB/W/m
Impedance 6 ohms
Dimensions Approx. 175 × 290 × 220 mm (w/h/d)
(7 × 11 $\frac{1}{2}$ × 8 $\frac{3}{4}$ inches)
Weight Approx. 3.3 kg (7 lb 5 oz) net per speaker

General**Power requirements**

AEP model: 220 V AC, 50/60 Hz
UK model: 240 V AC, 50 Hz
E model: 120, 220 or 240 V AC adjustable,
50/60 Hz

Power consumption

AEP, E model: 110 watts
UK model: 220 watts

Dimensions

Approx. 585 x 355 x 280 mm (w/h/d)
(23¹/₈ x 14 x 11¹/₈ inches)

Weight

Incl. projecting parts and controls
AEP, E model
Approx. 14.3 kg (31 lb 9 oz) net
Approx. 15.8 kg (34 lb 14 oz) in shipping carton
UK model
Approx. 10 kg (22 lb 1 oz) net
Approx. 120 kg (26 lb 8 oz) in shipping carton

FEATURES**Tuner section**

- **Preset function** stores a total of 20 (for AEP, UK model), or 15 (for E model) stations in memory.
- **Preset-station-scanning** helps you search for a desired program.

Amplifier section

- **Electronic 7-band graphic equalizer** allows you to memorize a total of 3 equalizer settings.
- **Power output** of 45W + 45W (for AEP, UK model).
- **Peak music power output** of 380W (for E model).

Cassette deck

- **Automatic Music Sensor function** locates the beginning of the selection being played back or the next selection.
- **Auto play function** starts playback automatically after fast winding.

Remote control

- A CD player equipped with the CONTROLS IN connector such as the CDP-17F can be controlled as well as this system.

NOTE ON LITHIUM BATTERY**WARNING !!****ADVARSEL!**

Lithiumbatteri – Eksplosionsfare
Udskiftning må kun foretages
af en sagkyndig, og som
beskrevet i servicemanualen.

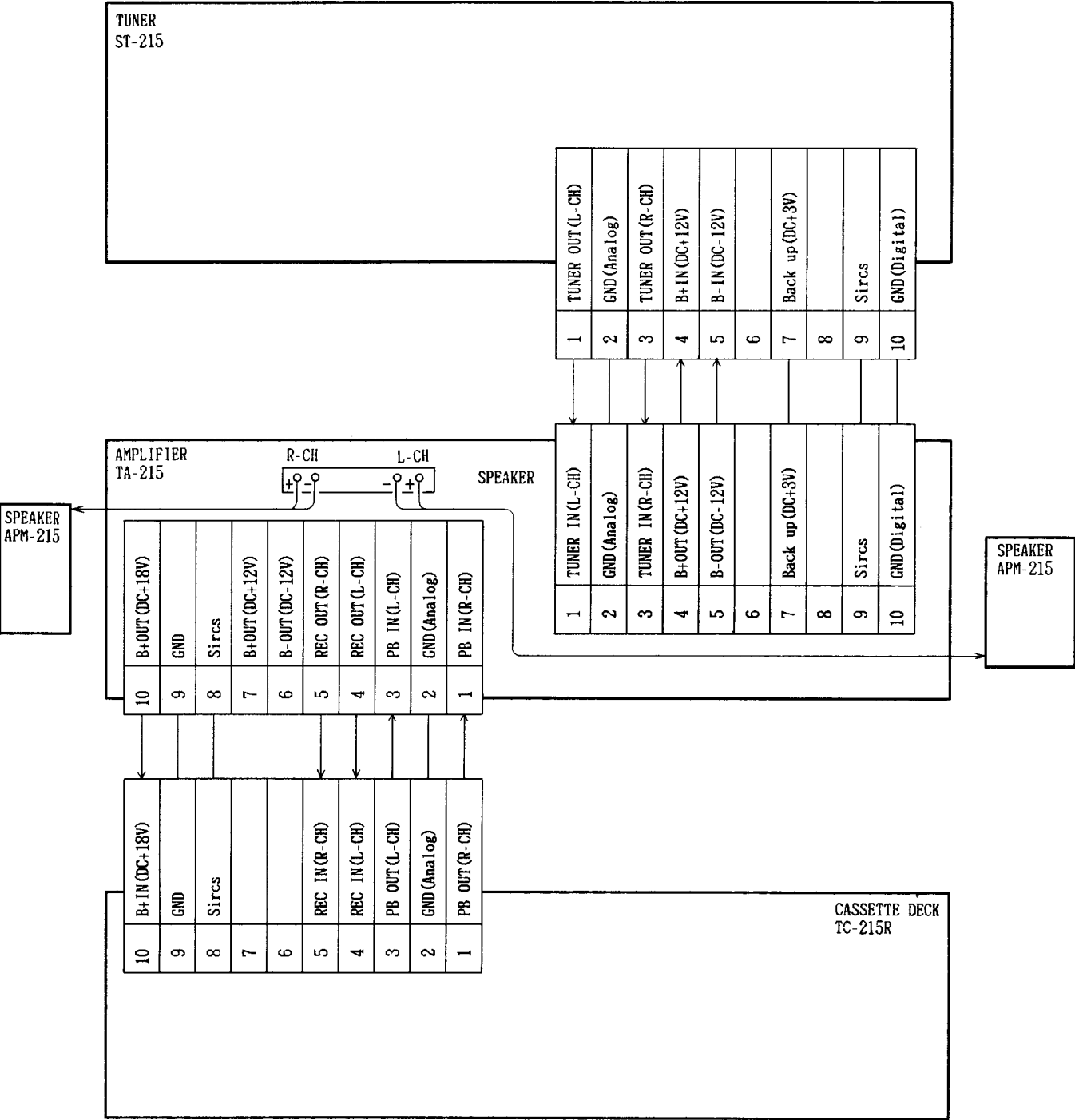
LITHIUM BATTERY

SHOULD ONLY BE CHANGED BY TECHNICAL
PERSONNEL. THERE IS A RISK FOR EXPLOSION
AT A WRONG HANDLING.

“Batteriet må kun udskiftes med et batteri af samme
fabrikat og type”.

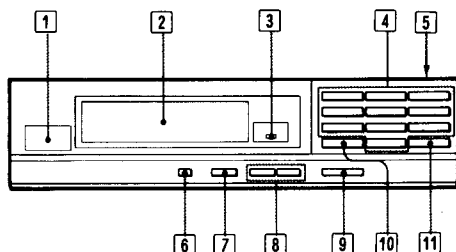
Because of the risk for explosion the battery must
be replaced with the same type and manufacture.

CONNECTOR'S SIGNAL ASSIGNMENT



FUNCTION OF CONTROLS

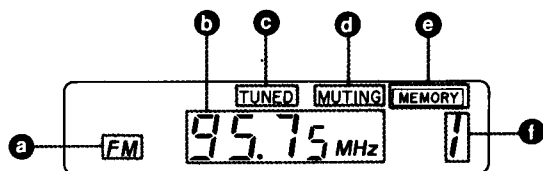
TUNER



1 REMOTE SENSOR

Receives the infrared ray command transmitted from the supplied remote commander.

2 Display window



a BAND indicator

b FREQUENCY indicator

c TUNED indicator

Appears when a signal is tuned in.

d MUTING indicator

Appears when the STEREO/MUTING switch is pressed.

e MEMORY indicator

Appears when the MEMORY button is pressed.

f PRESET (preset station) indicator

3 STEREO indicator

Lights up when an FM stereo program of sufficient signal strength is tuned in.

4 PRESET (10-key station preset) selectors

Used for quick tuning of frequently used radio stations.

5 Telescopic antenna

6 STEREO/MUTING switch

Normally keep this switch engaged to eliminate FM interstation noise when manually tuning. When receiving a noisy FM stereo program or a very weak station, disengage the switch for better reception. (The sound will be monaural instead.)

7 BAND selector

Each time the button is pressed, the band changes in the following sequence.

AEP, UK model: FM→MW→LW

E model: FM→SW2→SW1→MW

8 TUNING + and - buttons

Use to change radio stations.

+: Press to move to a higher frequency station.

-: Press to move to a lower frequency station.

Hold the button down for continuous frequency change.

9 MEMORY SCAN button

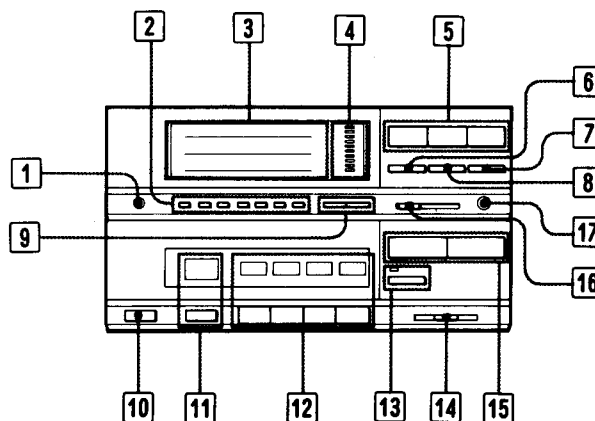
Press to scan the preset stations.

10 MEMORY button

11 ENTER button

Completes preset station selections.

AMPLIFIER

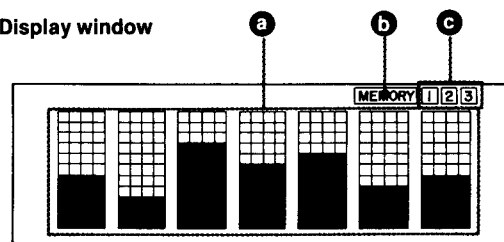


1 PHONES (headphones) jack (stereo minijack)

2 Graphic equalizer band selectors

Press to select the frequency band to equalize.

3 Display window



③ SPECTRUM ANALYZER/GRAPHIC EQUALIZER display

Usually displays the SPECTRUM ANALYZER. When the DISPLAY button or any other button or switch controlling the equalizer is pressed, it changes to the GRAPHIC EQUALIZER display.

SPECTRUM ANALYZER	The sound level in 7 bands is displayed.
GRAPHIC EQUALIZER	The equalizer adjustment setting is displayed.

⑤ MEMORY indicator

Appears when the EQ MEMORY button is pressed.

⑥ Equalizer preset number indicator

Shows the selected preset number of the graphic equalizer setting.

④ VOL LEVEL (volume level) indicator

⑤ EQ PRESET (equalizer preset) selector

Press to select the preset number of the graphic equalizer setting.

⑥ DISPLAY button

Selects the display function; spectrum analyzer or graphic equalizer display.

⑦ EQ MEMORY (equalization memory) button

Press to memorize a graphic equalizer setting.

⑧ EQ FLAT (flat equalization) switch

Press to listen without equalization.

⑨ EQ LEVEL (equalization level) control buttons

Press + to increase, or – to decrease the sound level in the selected band during both listening and recording.

⑩ POWER switch

⑪ DBFB (Dynamic Bass Feed Back) button and indicator

(for AEP/UK model)
SAT (Super Acoustic Turbo) button and indicator
(for E model)

Depress to reinforce bass sound in playback. To disengage the button, press it again.

⑫ FUNCTION select buttons and indicators

TAPE: Press to listen to tapes.

CD: Press to listen to or to record from compact discs or auxiliary sources.

TUNER: Press to listen to or to record radio programs.

PHONO: Press to listen to or to record from phonograph records.

⑬ MUTING switch and indicator

Press to momentarily mute the sound by 20 dB. To disengage the button, press it again.

⑭ BALANCE control

Changes relative strength of right and left speaker output. Use to correct stereo imaging, especially when the speaker position is not symmetrical.

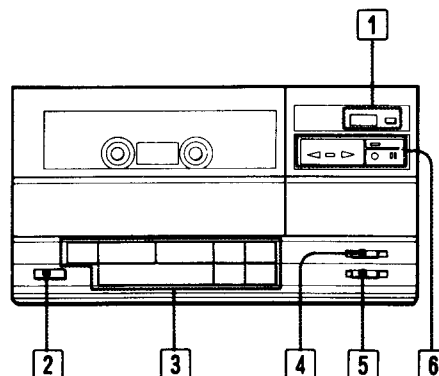
⑮ VOLUME control buttons

⑯ MIC LEVEL (microphone level) control

Slide toward MAX to increase the microphone input level, and towards MIN to decrease it.

⑰ MIC (microphone) jack (stereo minijack)

CASSETTE DECK



① TAPE COUNTER and RESET button

Use the counter to index and quickly locate desired points on a tape.

The RESET button returns the counter to 000.

② EJECT button

③ Tape operation buttons

- ◀◀ (leftward fastwinding)
- ◀ (reverse play)
- ▶ (forward play)
- ▶▶ (rightward fastwinding)
- (record)
- (stop)
- ⏸ (pause)
- (record muting)

④ DIRECTION MODE selector

⑤ DOLBY NR * (Noise Reduction) switch

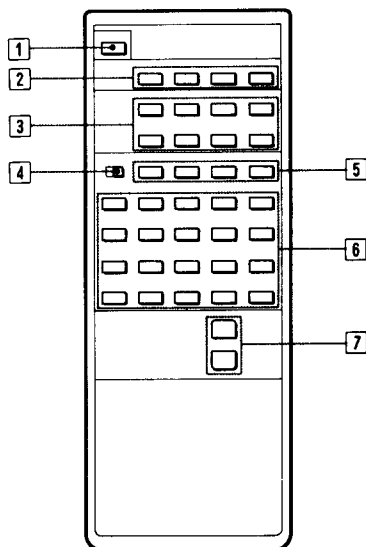
* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

⑥ MODE indicators

- ◀ REV (reverse): Lights up when the reverse side of the cassette is being played back or recorded.
- PLAY: Lights up during playback or recording.
- ▶ FWD (forward): Lights up when the front side of the cassette is being played back or recorded.
- AMS: Lights up during AMS operation.
- REC: Lights up during recording.
- ⏸ PAUSE: Lights up while the tape is in pause.

REMOTE COMMANDER (RM-215R)

The functions of the buttons 1, 2, 3 and 7 are the same as those of the FH-215R system.



1 MUTING switch

2 FUNCTION buttons

3 TAPE operation buttons

4 CD/TUNER switch

Selects the function of the numeric buttons.

5 CD player operation buttons

▶ (play)

◀◀ (previous selection)

▶▶ (forward selection)

■ (stop)

6 Numeric buttons

For the CD player equipped with 20-key music selector :

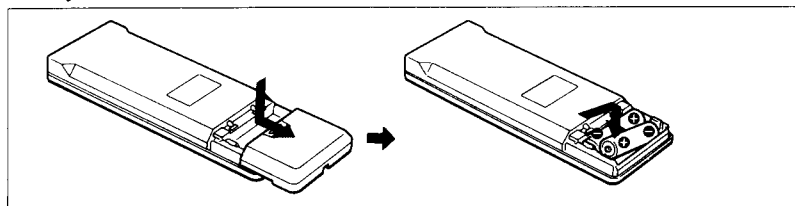
Press to select the desired selection.

For the tuner : Press to select the preset station number.

7 VOLUME control buttons

Before remote control operation, turn on the POWER switch of the amplifier.

Battery installation



Battery life

About half a year of normal operation can be expected when using the Sony SUM-3(NS) batteries.

When the batteries become exhausted, the commander does not operate. In this case, replace both batteries with new ones.

When the commander is not to be used for a long period of time, remove the batteries to avoid damage caused by battery leakage and corrosion.

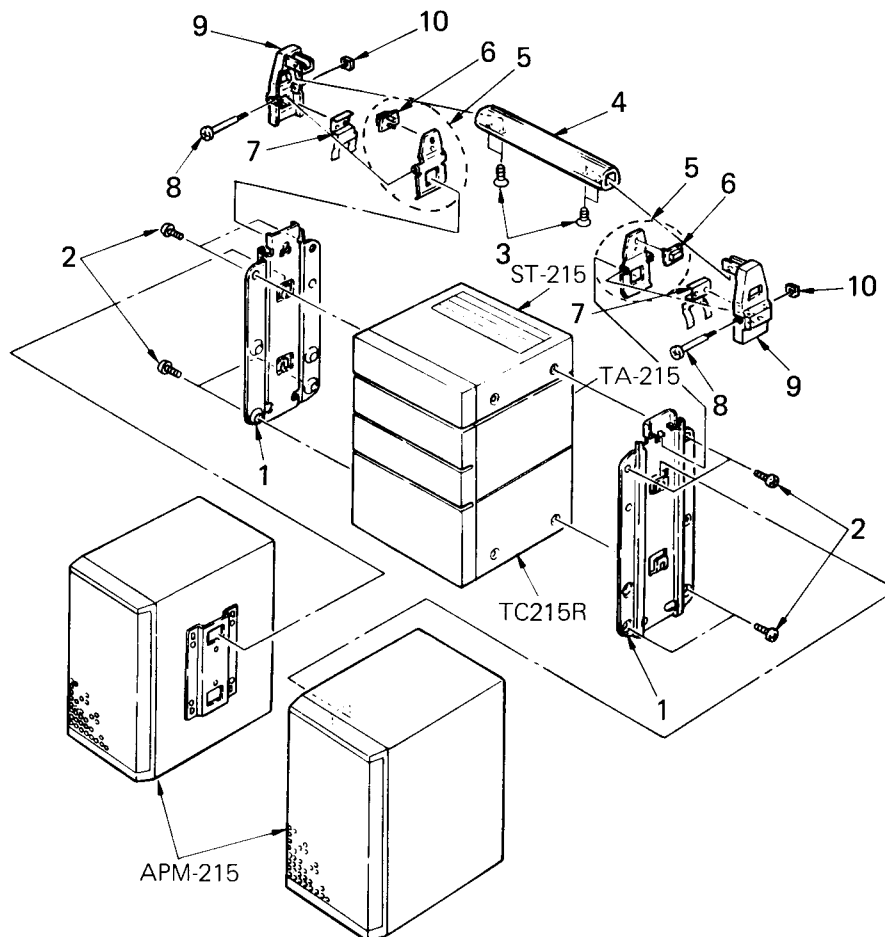
To control the FH-215R system

Point the head of the commander towards the REMOTE SENSOR of this system.

To control a CD player

Connect the CONTROL S OUT jack of the FH-215R system to the CONTROL S IN jack of the CD player, using the 4-pin CD player connecting cord supplied with this system.

EXPLODED VIEW AND PARTS LIST



No.	Part No.	Description	Remarks
1	4-920-120-01	PLATE (A), SIDE	
2	X-4910-086-1	SCREW ASSY, SIDE PLATE	
3	7-685-247-19	SCREW *KTP 3X10 TYPE2 SLIT	
4	2-249-402-21	HANDLE	
5	X-4919-631-1	PLATE, SEESAW ASS'Y	6
6	4-884-803-12	PUSH BUTTON	
7	4-902-942-03	SPRING, LEAF	
8	4-884-805-21	SHAFT	
9	4-910-361-11	HOLDER, HANDLE	
10	4-884-801-11	NUT, PLATE	

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-463-847-11	REMOTE COMMANDER (RM-215R)
1-558-233-11	CORD (WITH CONNECTOR)(SIRCS) 4P
1-558-787-11	(UK)...CORD, CONNECTION
1-559-162-11	CORD (WITH CONNECTOR)
2-249-402-21	HANDLE
3-701-613-00	BAG, POLYETHYLENE
3-701-630-00	BAG, POLYETHYLENE
3-764-747-01	(E2,E3).....INSTRUCTION (CATALOGUE)
3-764-748-01	(Saudi Arabia)...INSTRUCTION (CATALOGUE)
3-765-908-11	MANUAL, INSTRUCTION
3-765-908-41	(AEP)...MANUAL, INSTRUCTION
3-765-977-11	(UK)...MANUAL, INSTRUCTION
4-920-122-01	(UK).....INDIVIDUAL CARTON
4-920-123-01	(AEP).....INDIVIDUAL CARTON
4-920-124-01	(E2,E3,Saudi Arabia)...INDIVIDUAL CARTON
4-920-127-01	CUSHION, UPPER
4-920-128-01	CUSHION, LOWER
9-911-842-XX	CUSHION (F)

ST-215 PACKING MATERIAL

4-884-884-00 SHEET, PROTECTION

TA-215 PACKING MATERIAL

4-910-323-01 SHEET, PROTECTION

TC-215R PACKING MATERIAL

3-881-664-00 SHEET, PROTECTION

APM-215 PACKING MATERIAL

4-920-121-01 CUSHION
4-920-151-01 SHEET, PROTECTION

FH-215R
FH-1215CD

FM STEREO/FM-AM TUNER (ST-215)

AEP Model
UK Model

WARNING !!

ADVARSEL!

Lithiumbatteri – Eksplosionsfare
Udskiftning må kun foretages
af en sagkyndig, og som
beskrevet i servicemanualen.

LITHIUM BATTERY

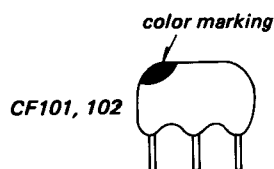
SHOULD ONLY BE CHANGED BY TECHNICAL
PERSONNEL. THERE IS A RISK FOR EXPLOSION
AT A WRONG HANDLING.

“Batteriet må kun udskiftes med et batteri af samme
fabrikat og type”.

Because of the risk for explosion the battery must
be replaced with the same type and manufacture.

Note on Ceramic Filter (CF101, 102) Replacement and Diode D314, 315 Connection.

This set employs two ceramic filters (CF101, 102) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D314, 315) connection is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



○: connect
X: not connect

Ceramic filter		D314, 315 connection		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	*A (D314)	*B (D315)	
White	10.750	○	X	10.750
Red	10.700	X	X	10.700
Black	10.650	X	○	10.650

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same color coding should be used for CF101 and CF102.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

SECTION 1 ADJUSTMENTS

FM SECTION

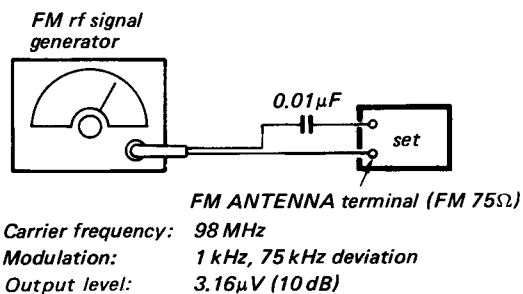
Setting:

BAND selector switch: FM

Note: FM discriminator alignment should be made after FM tracking adjustment.

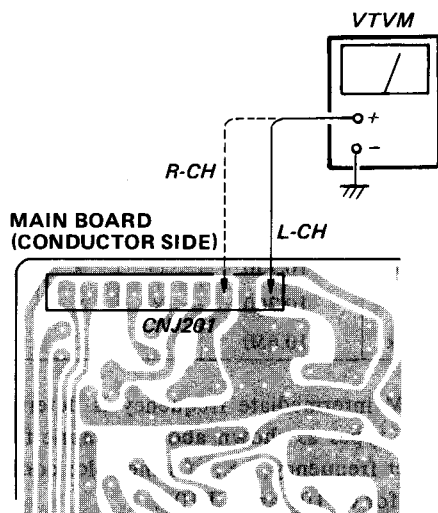
FM Tracking Adjustment

Setting:



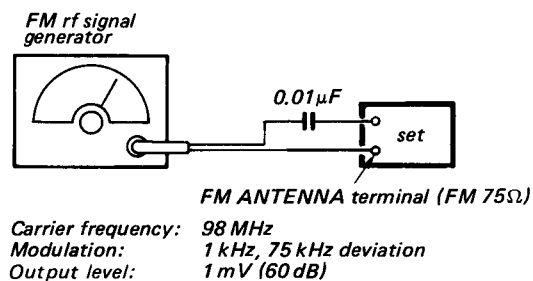
Procedure:

1. Push TUNING (+, -) button for 98 MHz.
2. Approach L002 and L003 not to contact each other.
3. Adjust L001 and L003, and repeat the adjustment 2 – 3 times for maximum VTVM reading.

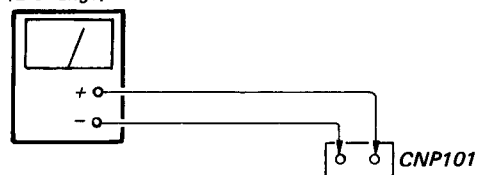


FM Discriminator Alignment (NULL Check)

Setting:

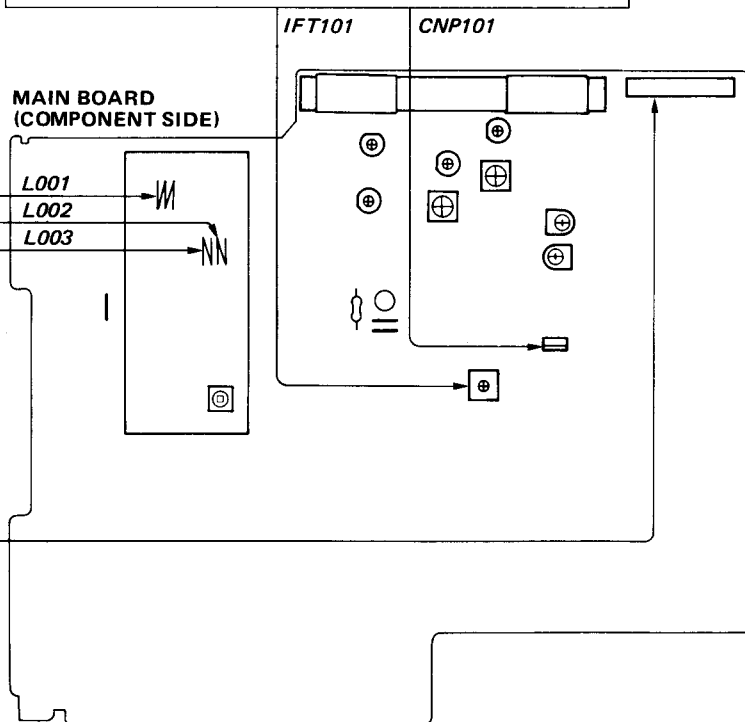


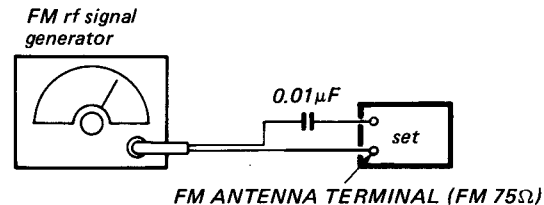
VOM
(DC range)



Procedure:

1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.

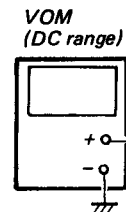
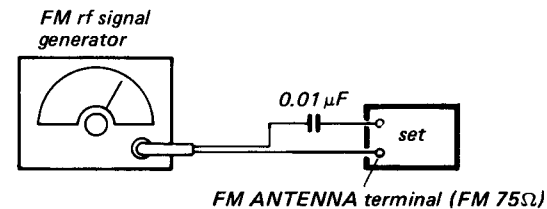


FM OSC Voltage Adjustment**Setting:**

Carrier frequency: 108 MHz
 Modulation: 1 kHz, 75 kHz deviation
 Output level: as low as possible

Procedure:

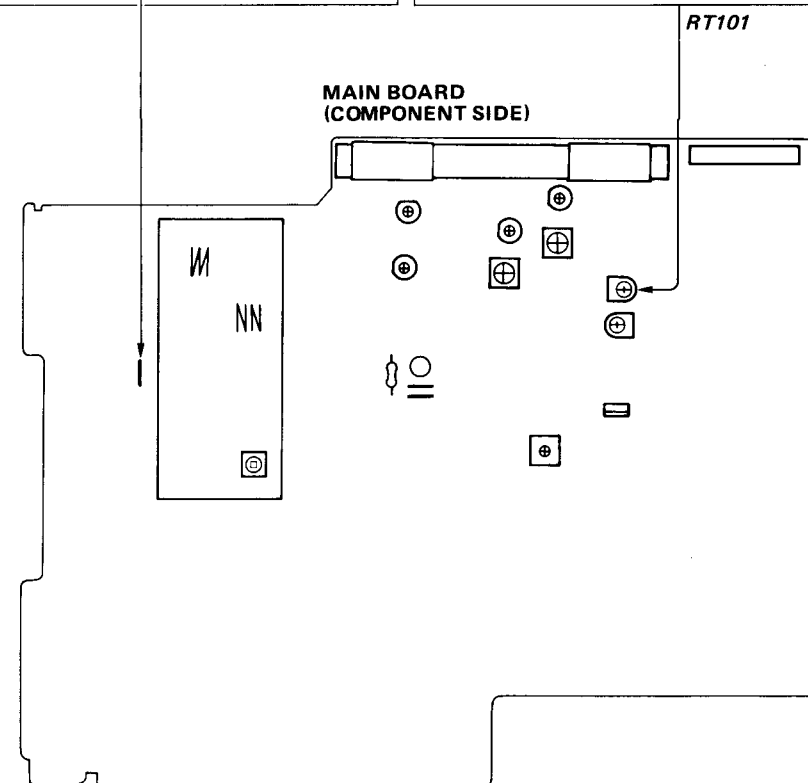
1. Push the TUNING (+, -) button for 108 MHz.
2. Adjust L005 for 8 – 8.5 V reading on the VOM.

**FM TUNED Indication Lighting Level Adjustment****Setting:**

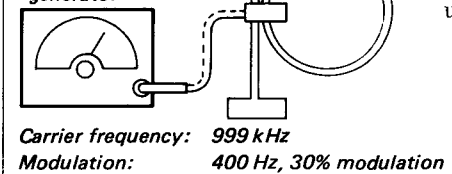
Carrier frequency: 98 MHz
 Modulation: 1 kHz, 75 kHz deviation
 Output level: 22.4 μV (27 dB)

Procedure:

1. Confirm that the MUTING indicator lights up on the display window.
2. Tune the set to 98 MHz.
3. Adjust RT101 so that the TUNED indicator goes on.

**AM TUNED INCIATION LIGHTING LEVEL ADJUSTMENT**

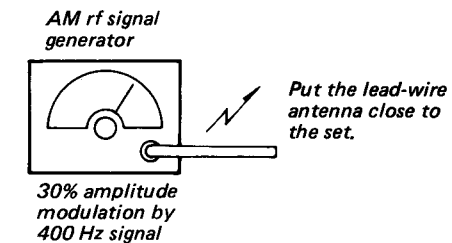
BAND select switch: MW

Procedure:

1. Set loop antenna so that the MW antenna input level becomes 0.7V/m (57 dB/m).
2. Adjust RT102 so that the LED lights up.

AM SECTION**Setting:**

BAND selector switch: MW or LW

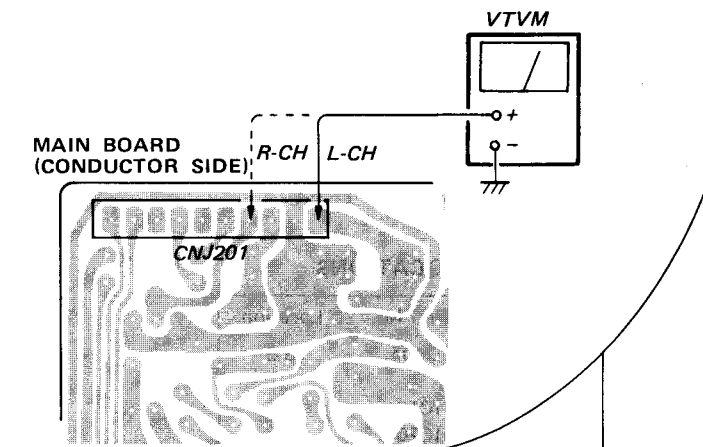
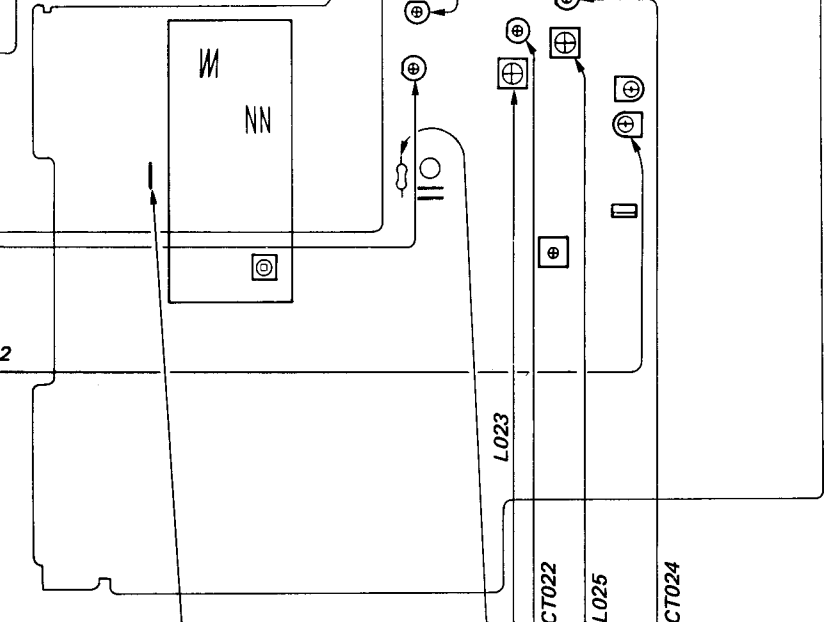


- Repeat the procedures in each adjustment several times, and the OSC voltage and tracking adjustments should be finally done by the trimmer capacitors.

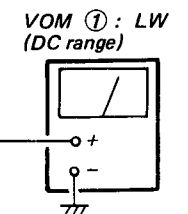
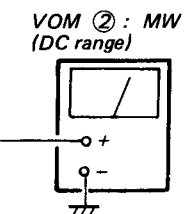
• Perform after LW TRACKING ADJUSTMENT.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
603 kHz	L022
1,404 kHz	CT021

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
162 kHz	L022
270 kHz	CT023

**MAIN BOARD (COMPONENT SIDE)****MW/LW OSC Voltage Adjustment****Procedure:**

1. Set BAND selector switch to MW.
2. Push TUNING (+, -) button for 522 kHz. Adjust L023 for 1 – 1.1 V VOM ② reading.
3. Push the button for 1,611 kHz. Adjust CT022 for 8 – 8.5 V VOM ② reading.
4. Set BAND selector switch to LW.
5. Push TUNING (+, -) button for 144 kHz. Adjust L025 for 1 – 1.1 V VOM ① reading.
6. Push the button for 288 kHz. Adjust CT024 for 8 – 8.5 V VOM ① reading.



SECTION 2 DIAGRAMS**2-1. MOUNTING DIAGRAM**

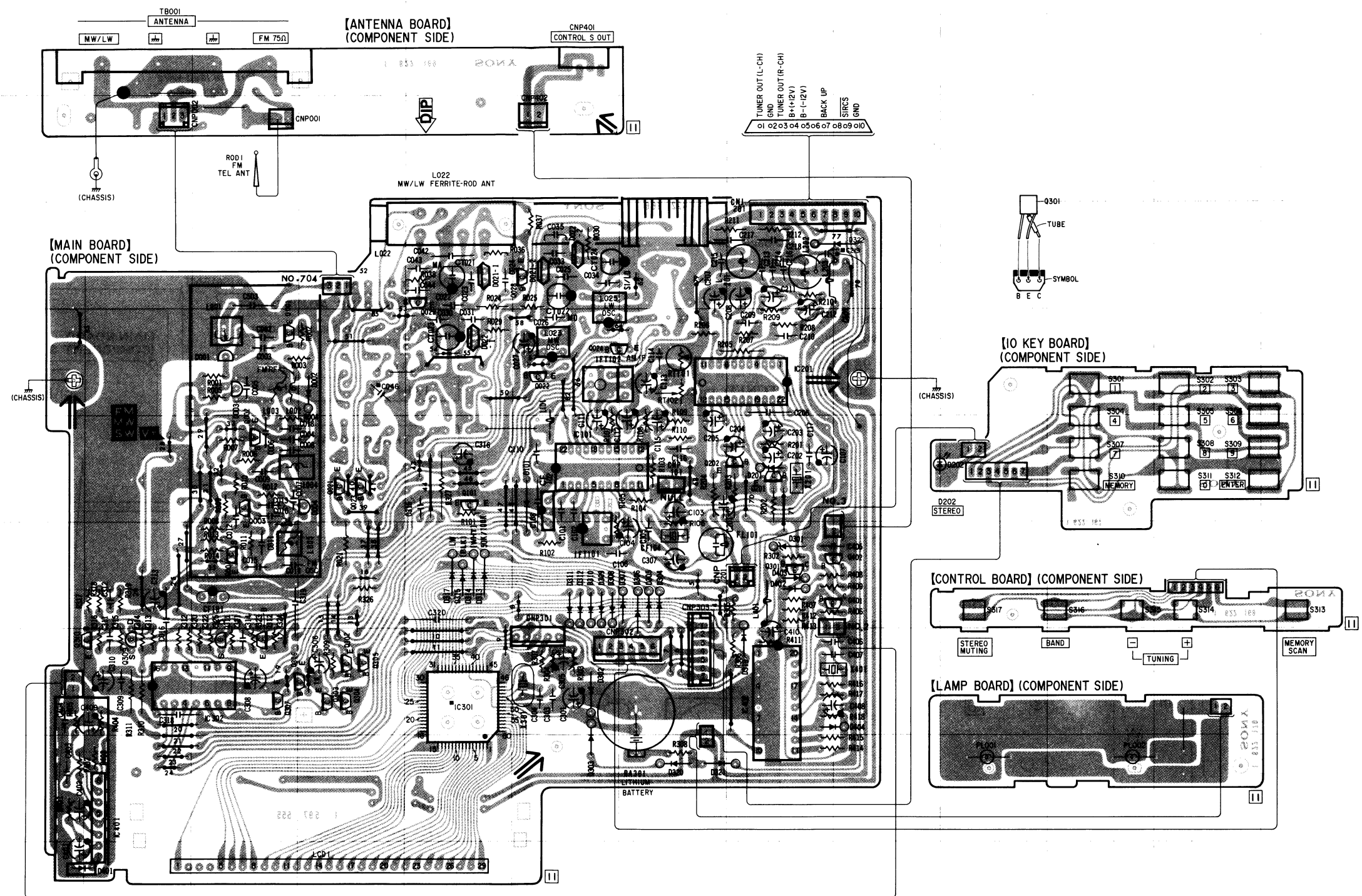
- See page ST-10 for semiconductor lead layouts.

Note:

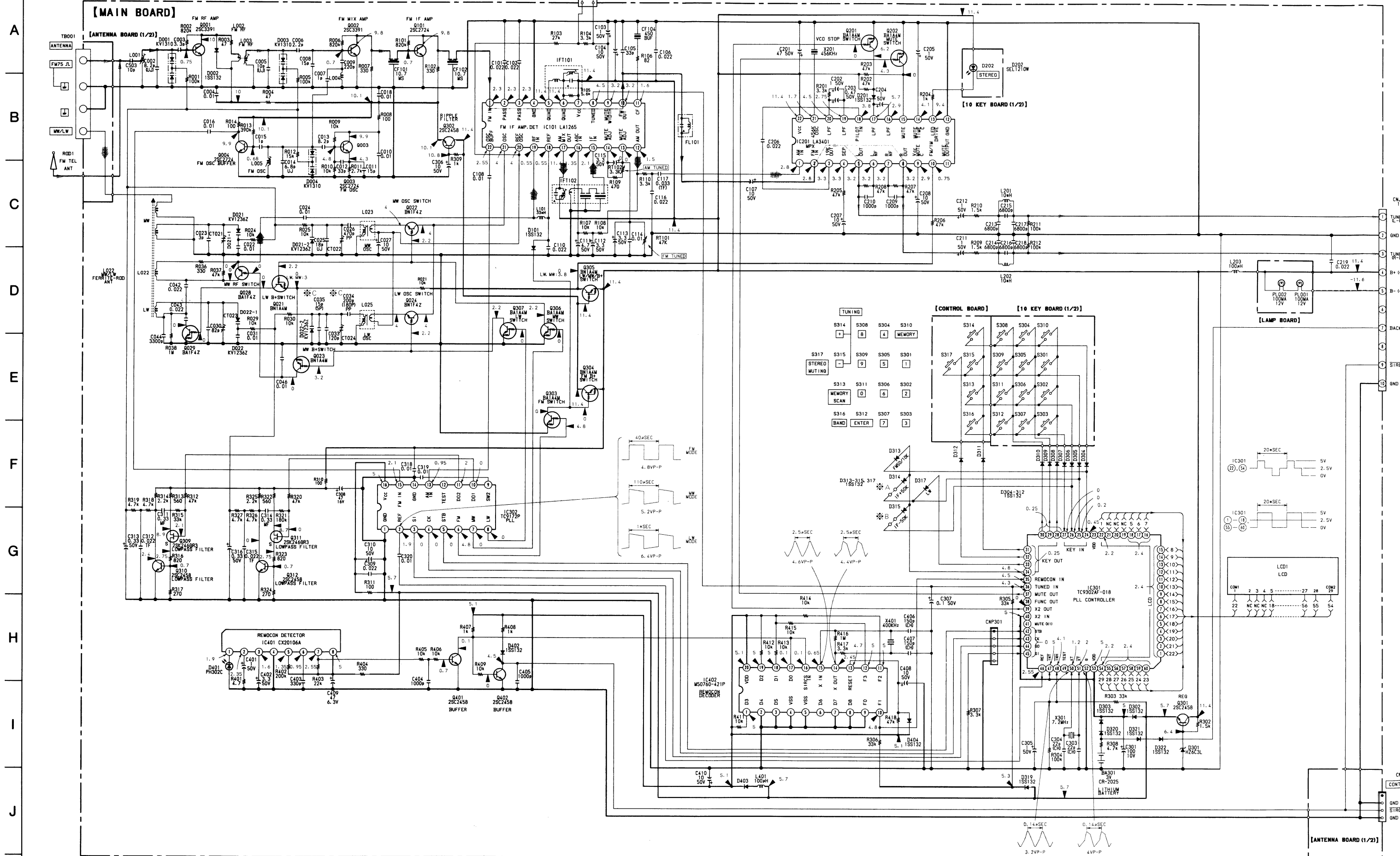
- ■ : parts mounted on the conductor side.
- □ : indicates side identified with part number.

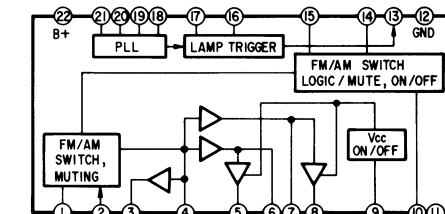
• SEMICONDUCTOR LOCATIONS

Ref. No.	Location	Ref. No.	Location
D001	D-3	D404	G-9
D002	D-4		
D003	D-3	IC101	E-6
D004	E-4	IC201	D-8
D021-1	C-5	IC301	G-5
D021-2	C-6	IC302	G-3
D022-1	D-5	IC401	H-2
D022-2	C-6	IC402	G-8
D101	E-6		
D201	E-8	Q001	D-3
D202	E-10	Q002	E-3
D301	F-8	Q003	E-3
D302	G-6	Q004	F-3
D303	H-6	Q021	E-4
D304	F-7	Q022	D-6
D305	F-7	Q023	E-4
D306	F-7	Q024	D-6
D307	F-7	Q028	C-6
D308	F-6	Q029	C-5
D309	F-6	Q101	E-5
D310	F-6	Q201	E-8
D311	F-6	Q202	E-8
D312	F-6	Q301	F-8
D313	F-5	Q302	G-4
D314	F-5	Q303	G-4
D315	F-5	Q304	G-4
D317	F-5	Q305	G-4
D319	G-8	Q306	G-3
D320	H-7	Q307	G-3
D321	H-7	Q309	G-2
D322	C-9	Q310	G-1
D401	I-2	Q311	G-3
D402	F-8	Q312	G-3
D403	F-8	Q401	F-9
		Q402	F-9



2-2. SCHEMATIC DIAGRAM

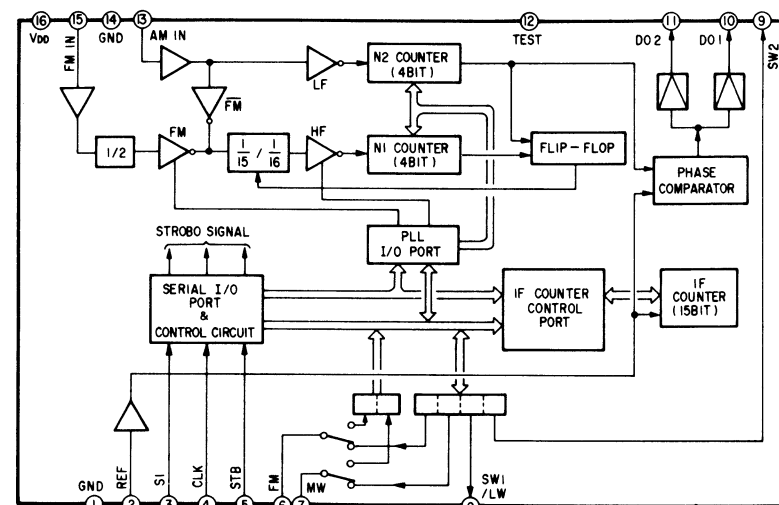




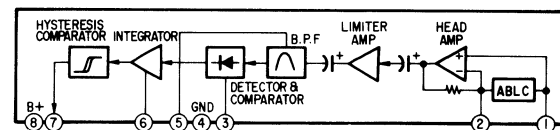
SECTION 3

EXPLODED VIEW AND PARTS LIST

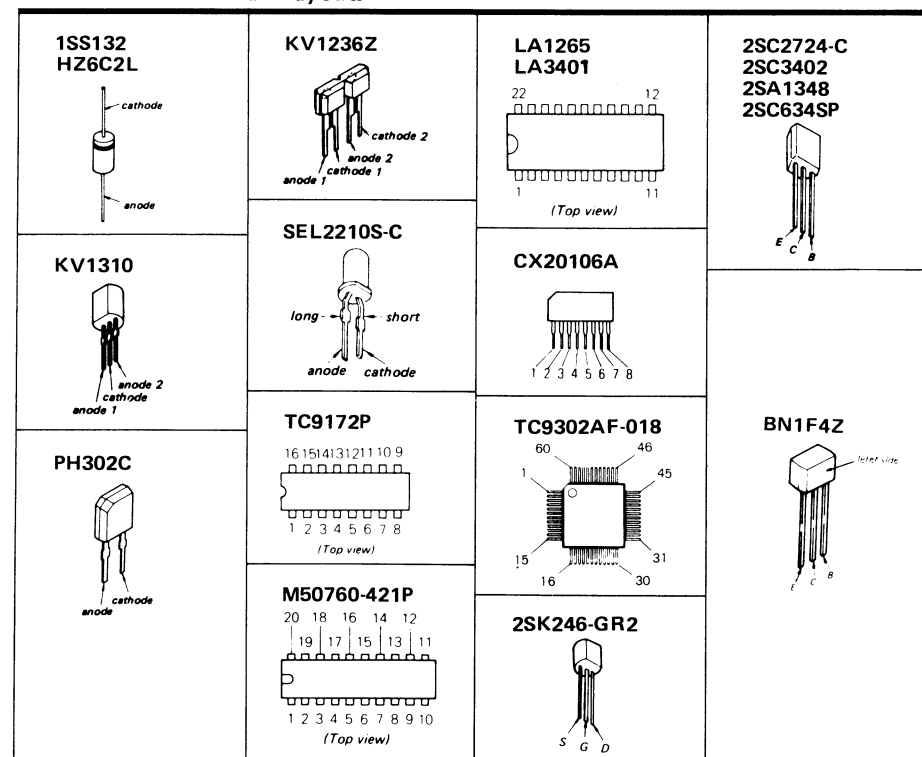
IC302 TC9172P



IC401 CX20106A



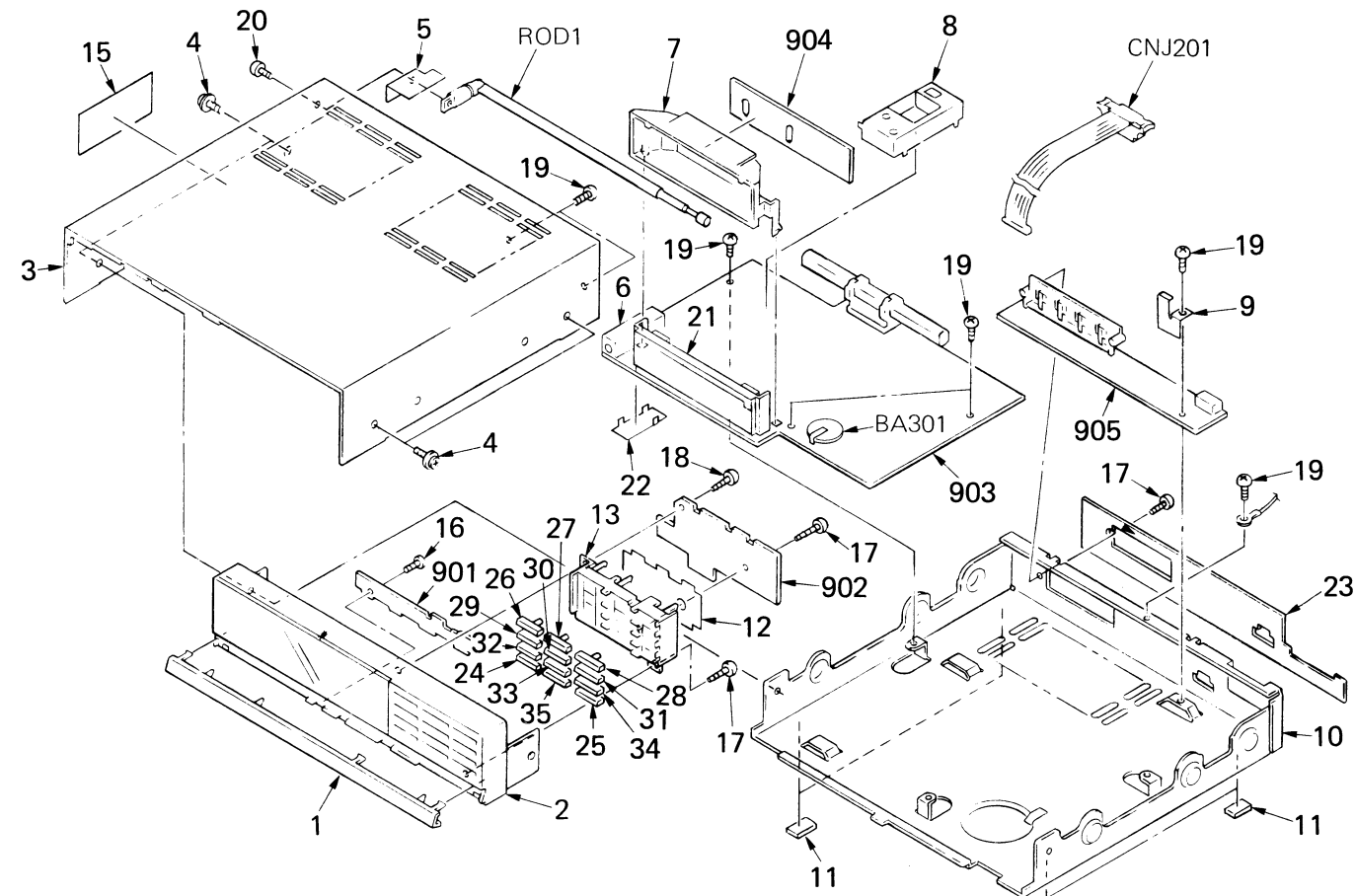
- **Semiconductor Lead Layouts**



NOTE:

- NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
 - Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
 - The construction parts of an assembled part are indicated with a collation number in the remark column.
 - Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE (WHITE)

Cabinet's Color	Parts' Color
-----------------	--------------



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	4-919-616-01	PANEL, CONTROL		23	*4-919-613-21	COVER, REAR	
2	X-4910-304-1	PANEL ASSY		24	4-920-175-01	BUTTON (MEMORY)	
3	4-920-137-01	CASE		25	4-920-175-11	BUTTON (ENTER)	
4	4-886-821-21	SCREW, M3 CASE STOPPER		26	4-920-176-01	BUTTON (1)	
5	*4-919-611-01	BRACKET, ANT		27	4-920-176-11	BUTTON (2)	
6	*4-909-705-01	PLATE, SHIELD		28	4-920-176-21	BUTTON (3)	
7	*4-917-275-01	HOUSE, LAMP		29	4-920-176-31	BUTTON (4)	
8	*4-874-704-01	CASE, SHIELD		30	4-920-176-41	BUTTON (5)	
9	*4-920-156-01	PLATE (B), SHIELD		31	4-920-176-51	BUTTON (6)	
10	*4-919-617-01	CHASSIS		32	4-920-176-61	BUTTON (7)	
11	4-919-608-01	FOOT		33	4-920-176-71	BUTTON (8)	
12	*4-919-607-01	SPACER		34	4-920-176-81	BUTTON (9)	
13	*4-919-614-01	RETAINER, BUTTON		35	4-920-176-91	BUTTON (0)	
15	*4-920-133-01	LABEL, MODEL NUMBER (AE)		901	*1-622-168-11	PC BOARD, CONTROL	
16	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		902	*1-622-167-11	PC BOARD, 10 KEY	
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		903	*A-4351-575-A	MOUNTED PCB, TUNER	
18	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		904	*1-622-170-11	PC BOARD, LAMP	
19	7-682-147-01	SCREW +BVTT 3X6 (S)		905	*1-622-169-11	PC BOARD, ANTENNA	
20	7-682-547-09	SCREW +B 3X6					
21	*4-909-633-01	ILLUMINATOR		BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)	
22	*4-920-149-01	PLATE (A), SHIELD		CNJ201	1-559-163-11	CORD (WITH CONNECTOR) 10P	
				R001	1-501-270-00	ANTENNA, TELESCOPIC	

NOTE:

- Items marked with an asterisk (*) indicate that they are special order items and may not be available for immediate shipment.
- If there are any questions, please contact your local distributor or the factory.

Ref.No.	P
901	*1
902	*1
903	*A
904	*1
905	*1
BA301	1
C002	1
C003	1
C004	1
C005	1
C006	1
C007	1
C008	1
C009	1
C010	1
C011	1
C012	1
C013	1
C014	1
C015	1
C016	1
C018	1
C022	1
C023	1
C024	1
C025	1
C026	1
C027	1
C030	1
C031	1
C033	1
κ C C034	1
κ C C034	1
κ C C035	1
κ C C035	1
C042	1
C043	1
C044	1
C046	1
C101	1
C102	1
C103	1
C104	1
C105	1
C106	1
※ C	

✱ C

TYPE
TYPE

SECTION 3

EXPLODED VIEW AND PARTS LIST

NOTE:

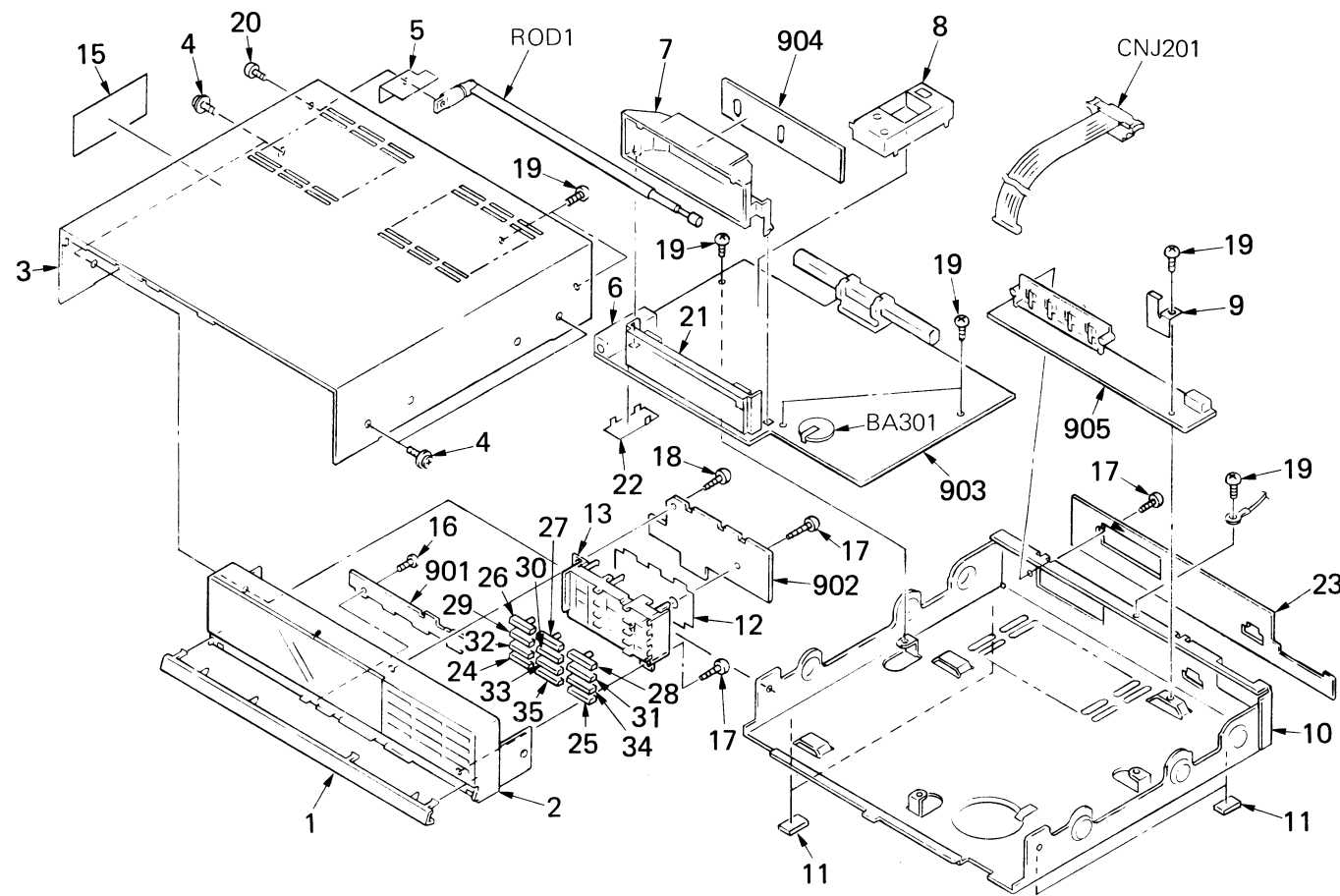
• The mechanical parts with no reference number in the exploded views are not supplied.

• Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• The construction parts of an assembled part are indicated with a collation number in the remark column.

• Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE (WHITE)

Cabinet's Color Parts' Color



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	4-919-616-01	PANEL, CONTROL		23	*4-919-613-21	COVER, REAR	
2	X-4910-304-1	PANEL ASSY		24	4-920-175-01	BUTTON (MEMORY)	
3	4-920-137-01	CASE		25	4-920-175-11	BUTTON (ENTER)	
4	4-886-821-21	SCREW, M3 CASE STOPPER		26	4-920-176-01	BUTTON (1)	
5	*4-919-611-01	BRACKET, ANT		27	4-920-176-11	BUTTON (2)	
6	*4-909-705-01	PLATE, SHIELD		28	4-920-176-21	BUTTON (3)	
7	*4-917-275-01	HOUSE, LAMP		29	4-920-176-31	BUTTON (4)	
8	*4-874-704-01	CASE, SHIELD		30	4-920-176-41	BUTTON (5)	
9	*4-920-156-01	PLATE (B), SHIELD		31	4-920-176-51	BUTTON (6)	
10	*4-919-617-01	CHASSIS		32	4-920-176-61	BUTTON (7)	
11	4-919-608-01	FOOT		33	4-920-176-71	BUTTON (8)	
12	*4-919-607-01	SPACER		34	4-920-176-81	BUTTON (9)	
13	*4-919-614-01	RETAINER, BUTTON		35	4-920-176-91	BUTTON (0)	
14	*4-920-133-01	LABEL, MODEL NUMBER (AE)					
15	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		901	*1-622-168-11	PC BOARD, CONTROL	
16	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		902	*1-622-167-11	PC BOARD, 10 KEY	
17				903	*A-4351-575-A	MOUNTED PCB, TUNER	
18	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		904	*1-622-170-11	PC BOARD, LAMP	
19	7-682-147-01	SCREW +BVTT 3X6 (S)		905	*1-622-169-11	PC BOARD, ANTENNA	
20	7-682-547-09	SCREW +B 3X6					
21	*4-909-633-01	ILLUMINATOR		BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)	
22	*4-920-149-01	PLATE (A), SHIELD		CNJ201	1-559-163-11	CORD (WITH CONNECTOR) 10P	
				ROD1	1-501-270-00	ANTENNA, TELESCOPIC	

SECTION 4

ELECTRICAL PARTS LIST

NOTE:

• Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ P.F.

RESISTORS

• All resistors are in ohms.

• F: nonflammable

COILS

• MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:

UA....: μ A..., UPA....: μ PA..., UPC....: μ PC,

UPD....: μ PD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
901	*1-622-168-11	PC BOARD, CONTROL				
902	*1-622-167-11	PC BOARD, 10 KEY				
903	*A-4351-575-A	MOUNTED PCB, TUNER				
904	*1-622-170-11	PC BOARD, LAMP				
905	*1-622-169-11	PC BOARD, ANTENNA				
BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)				
C002	1-162-198-31	CERAMIC	8.2PF	10%	50V	
C003	1-162-193-31	CERAMIC	3.3PF	10%	50V	
C004	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C005	1-162-199-31	CERAMIC	10PF	5%	50V	
C006	1-162-191-31	CERAMIC	2.2PF	10%	50V	
C007	1-162-187-31	CERAMIC	1PF	20%	50V	
C008	1-162-203-31	CERAMIC	15PF	5%	50V	
C009	1-162-286-31	CERAMIC	220PF	10%	50V	
C010	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C011	1-162-203-31	CERAMIC	15PF	5%	50V	
C012	1-162-211-31	CERAMIC	33PF	5%	50V	
C013	1-162-198-31	CERAMIC	8.2PF	10%	50V	
C014	1-162-197-31	CERAMIC	6.8PF	10%	50V	
C015	1-162-187-31	CERAMIC	1PF	20%	50V	
C016	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C018	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C022	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C023	1-102-936-00	CERAMIC	3PF	0.25PF	50V	
C024	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C025	1-102-953-00	CERAMIC	18PF	5%	50V	
C026	1-130-014-00	FILM	470PF	5%	50V	
C027	1-123-875-91	ELECT	10MF	20%	50V	
C030	1-102-971-00	CERAMIC	82PF	5%	50V	
C031	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C033	1-102-816-00	CERAMIC	120PF	5%	50V	
*C C034	1-130-047-00	FILM	180PF	5%	50V	
*C C034	1-136-010-00	FILM	200PF	5%	50V	
*C C035	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
*C C035	1-102-951-00	CERAMIC	15PF	5%	50V	
C042	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C043	1-101-005-00	CERAMIC	0.022MF		50V	
C044	1-161-327-00	CERAMIC	0.0033MF	20%	16V	
C046	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C101	1-101-005-00	CERAMIC	0.022MF		50V	
C102	1-101-005-00	CERAMIC	0.022MF		50V	
C103	1-124-791-11	ELECT	1MF	20%	50V	
C104	1-123-875-91	ELECT	10MF	20%	50V	
C105	1-162-211-31	CERAMIC	33PF	5%	50V	
C106	1-101-005-00	CERAMIC	0.022MF		50V	

*C

	C034	C035
TYPE 1	200P	15P
TYPE 2	180P	5P

There are two types of pairing of the capacity in C034 and C035 as mentioned left.

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
C107	1-123-875-91	ELECT	10MF	20%	50V	
C108	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C110	1-101-005-00	CERAMIC	0.022MF		50V	
C111	1-124-927-11	ELECT	4.7MF	20%	50V	
C112	1-124-905-11	ELECT	3.3MF	20%	50V	
C113	1-124-905-11	ELECT	3.3MF	20%	50V	
C114	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C115	1-124-905-11	ELECT	3.3MF	20%	50V	
C116	1-101-005-00	CERAMIC	0.022MF		50V	
C117	1-130-489-00	MYLAR	0.033MF	5%	50V	
C201	1-123-332-00	ELECT	47MF	20%	16V	
C202	1-124-791-11	ELECT	1MF	20%	50V	
C203	1-124-902-00	ELECT	0.47MF	20%	50V	
C204	1-124-791-11	ELECT	1MF	20%	50V	
C205	1-124-791-11	ELECT	1MF	20%	50V	
C206	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C207	1-123-875-91	ELECT	10MF	20%	50V	
C208	1-123-875-91	ELECT	10MF	20%	50V	
C209	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C210	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C211	1-124-791-11	ELECT	1MF	20%	50V	
C212	1-124-791-11	ELECT	1MF	20%	50V	
C213	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C214	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C215	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C216	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C217	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C218	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C219	1-101-005-00	CERAMIC	0.022MF		50V	
C301	1-124-443-00	ELECT	100MF	20%	10V	
C303	1-102-959-00	CERAMIC	22PF	5%	50V	
C304	1-102-959-00	CERAMIC	22PF	5%	50V	
C305	1-124-791-11	ELECT	1MF	20%	50V	
C306	1-123-875-91	ELECT	10MF	20%	50V	
C307	1-124-463-00	ELECT	0.1MF	20%	50V	
C308	1-123-332-00	ELECT	47MF	20%	16V	
C309	1-101-005-00	CERAMIC	0.022MF		50V	
C310	1-123-875-91	ELECT	10MF	20%	50V	
C311	1-136-171-00	FILM	0.33MF	5%	50V	
C312	1-130-487-00	MYLAR	0.022MF	5%	50V	
C313	1-124-252-00	ELECT	0.33MF	20%	50V	
C314	1-136-171-00	FILM	0.33MF	5%	50V	
C315	1-130-487-00	MYLAR	0.022MF	5%	50V	
C316	1-124-252-00	ELECT	0.33MF	20%	50V	
C318	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C319	1-161-379-00	CERAMIC	0.01MF	20%	16V	

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C320	1-161-379-00	CERAMIC 0.01MF 20% 16V
C401	1-124-791-11	ELECT 1MF 20% 50V
C402	1-124-905-11	ELECT 3.3MF 20% 50V
C403	1-162-288-31	CERAMIC 330PF 10% 50V
C404	1-162-294-31	CERAMIC 0.001MF 10% 50V
C405	1-162-294-31	CERAMIC 0.001MF 10% 50V
C406	1-101-361-00	CERAMIC 150PF 5% 50V
C407	1-101-361-00	CERAMIC 150PF 5% 50V
C408	1-123-875-91	ELECT 10MF 20% 50V
C409	1-124-224-00	ELECT 47MF 20% 6.3V
C410	1-123-875-91	ELECT 10MF 20% 50V
C503	1-162-199-31	CERAMIC 10PF 5% 50V
CF101	1-527-968-00	FILTER, CERAMIC
CF102	1-527-968-00	FILTER, CERAMIC
CF104	1-527-981-00	FILTER, CERAMIC
CNJ201	1-559-163-11	CORD (WITH CONNECTOR) 10P
CNP001	*1-560-060-00	PIN, CONNECTOR 2P
CNP002	*1-564-337-00	PIN, CONNECTOR 3P
CNP101	*1-560-060-00	PIN, CONNECTOR 2P
CNP201	*1-564-336-00	PIN, CONNECTOR 2P
CNP301	*1-560-063-00	PIN, CONNECTOR 5P
CNP302	*1-560-064-00	PIN, CONNECTOR 6P
CNP303	*1-564-341-11	PIN, CONNECTOR 7P
CNP401	1-564-980-11	PIN, CONNECTOR 4P
CNP402	*1-560-060-00	PIN, CONNECTOR 2P
CT021	1-141-227-00	TRIMMER, CERAMIC
CT022	1-141-304-21	TRIMMER, CERAMIC
CT023	1-141-227-00	CAP, CERAMIC TRIMMER
CT024	1-141-227-00	CAP, CERAMIC TRIMMER
D001	8-719-918-45	DIODE KV1310
D002	8-719-940-76	DIODE 1SS132
D003	8-719-918-45	DIODE KV1310
D004	8-719-918-45	DIODE KV1310
D021	8-719-902-79	DIODE KV1236Z
D022	8-719-902-79	DIODE KV1236Z
D101	8-719-940-76	DIODE 1SS132
D201	8-719-940-76	DIODE 1SS132
D202	8-719-303-18	DIODE SEL1210S-C
D301	8-719-910-68	DIODE H26C2L
D302	8-719-940-76	DIODE 1SS132
D303	8-719-940-76	DIODE 1SS132
D304	8-719-940-76	DIODE 1SS132
D305	8-719-940-76	DIODE 1SS132
D306	8-719-940-76	DIODE 1SS132
D307	8-719-940-76	DIODE 1SS132
D308	8-719-940-76	DIODE 1SS132
D309	8-719-940-76	DIODE 1SS132
D310	8-719-940-76	DIODE 1SS132
D311	8-719-940-76	DIODE 1SS132
D312	8-719-940-76	DIODE 1SS132
D313	8-719-940-76	DIODE 1SS132
D314	8-719-940-76	DIODE 1SS132
D315	8-719-940-76	DIODE 1SS132
D317	8-719-940-76	DIODE 1SS132
D319	8-719-940-76	DIODE 1SS132
D320	8-719-940-76	DIODE 1SS132
D321	8-719-940-76	DIODE 1SS132
D322	8-719-940-76	DIODE 1SS132
D401	8-719-123-68	DIODE PH302C

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D402	8-719-940-76	DIODE 1SS132
D403	8-719-940-76	DIODE 1SS132
D404	8-719-940-76	DIODE 1SS132
FL101	1-235-126-00	ENCAPSULATED COMPONENT
IC101	8-759-801-81	IC LA1265
IC201	8-759-801-80	IC LA3401
IC301	8-759-207-45	IC TC9302AF-018
IC302	8-759-202-63	IC TC9172P
IC401	8-759-602-54	IC CX20106A
IC402	8-759-603-43	IC M50760-421P
IFT101	1-404-659-11	COIL, DISCRIMINATOR
IFT102	1-404-713-11	TRANSFORMER, IF
L001	*1-422-336-11	COIL, AIR-CORE
L002	*1-422-040-00	COIL, AIR-CORE
L003	*1-422-081-00	COIL (WITH CORE)
L004	*1-422-039-00	COIL, AIR-CORE
L005	*1-459-396-00	COIL (WITH CORE)
L022	1-402-151-11	ANTENNA, FERRITE-ROD (LW/MW)
L023	1-406-089-11	COIL (OSC)
L025	1-406-207-11	COIL, LW (OSC)
L101	1-408-930-00	MICRO INDUCTOR 33MMH
L201	1-408-924-00	MICRO INDUCTOR 10MMH
L202	1-408-924-00	MICRO INDUCTOR 10MMH
L203	1-410-601-21	MICRO INDUCTOR 100UH
L401	1-410-601-21	MICRO INDUCTOR 100UH
LCD1	1-807-453-41	DISPLAY PANEL, LIQUID CRYSTAL
PL001	1-518-527-51	LAMP, PILOT
PL002	1-518-527-51	LAMP, PILOT
Q001	8-729-304-38	TRANSISTOR 2SC3391-B
Q002	8-729-304-38	TRANSISTOR 2SC3391-B
Q003	8-729-672-42	TRANSISTOR 2SC2724-C
Q004	8-729-672-42	TRANSISTOR 2SC2724-C
Q021	9-986-159-01	TRANSISTOR 2SA1348
Q022	8-729-115-33	TRANSISTOR BN1F4Z
Q023	9-986-159-01	TRANSISTOR 2SA1348
Q024	8-729-115-33	TRANSISTOR BN1F4Z
Q028	8-729-115-93	TRANSISTOR BA1F4Z
Q029	8-729-806-28	TRANSISTOR 2SC3402
Q101	8-729-672-42	TRANSISTOR 2SC2724-C
Q201	8-729-806-28	TRANSISTOR 2SC3402
Q202	8-729-806-28	TRANSISTOR 2SC3402
Q301	8-729-600-27	TRANSISTOR 2SC634SP
Q302	8-729-600-27	TRANSISTOR 2SC634SP
Q303	8-729-806-28	TRANSISTOR 2SC3402
Q304	9-986-159-01	TRANSISTOR 2SA1348
Q305	9-986-159-01	TRANSISTOR 2SA1348
Q306	8-729-806-28	TRANSISTOR 2SC3402
Q307	8-729-806-28	TRANSISTOR 2SC3402
Q309	8-729-201-56	TRANSISTOR 2SK246GR2
Q310	8-729-600-27	TRANSISTOR 2SC634SP
Q311	8-729-201-56	TRANSISTOR 2SK246GR2
Q312	8-729-600-27	TRANSISTOR 2SC634SP
Q401	8-729-600-27	TRANSISTOR 2SC634SP
Q402	8-729-600-27	TRANSISTOR 2SC634SP

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R001	1-249-441-11	CARBON	100K	5%	1/6W
R002	1-215-491-00	CARBON	820K	5%	1/6W
R003	1-249-401-11	CARBON	47	5%	1/6W
R004	1-249-401-11	CARBON	47	5%	1/6W
R005	1-249-441-11	CARBON	100K	5%	1/6W
R006	1-215-491-00	CARBON	820K	5%	1/6W
R007	1-249-411-11	CARBON	330	5%	1/6W
R008	1-249-405-11	CARBON	100	5%	1/6W
R009	1-249-429-11	CARBON	10K	5%	1/6W
R010	1-249-429-11	CARBON	10K	5%	1/6W
R011	1-249-422-11	CARBON	2.7K	5%	1/6W
R012	1-249-431-11	CARBON	15K	5%	1/6W
R013	1-215-483-00	CARBON	390K	5%	1/6W
R014	1-249-405-11	CARBON	100	5%	1/6W
R021	1-249-429-11	CARBON	10K	5%	1/6W
R024	1-249-429-11	CARBON	10K	5%	1/6W
R025	1-249-429-11	CARBON	10K	5%	1/6W
R029	1-249-429-11	CARBON	10K	5%	1/6W
R030	1-249-429-11	CARBON	10K	5%	1/6W
R036	1-249-411-11	CARBON	330	5%	1/6W
R037	1-249-437-11	CARBON	47K	5%	1/6W
R038	1-215-493-00	CARBON	1M	5%	1/6W
R101	1-215-491-00	CARBON	820K	5%	1/6W
R102	1-249-411-11	CARBON	330	5%	1/6W
R103	1-249-434-11	CARBON	27K	5%	1/6W
R104	1-249-423-11	CARBON	3.3K	5%	1/6W
R105	1-247-849-00	CARBON	5.6K	5%	1/6W
R106	1-249-404-00	CARBON	82	5%	1/6W
R107	1-249-429-11	CARBON	10K	5%	1/6W
R108	1-249-429-11	CARBON	10K	5%	1/6W
R109	1-249-413-11	CARBON	470	5%	1/6W
R110	1-249-423-11	CARBON	3.3K	5%	1/6W
R201	1-249-423-11	CARBON	3.3K	5%	1/6W
R202	1-249-437-11	CARBON	47K	5%	1/6W
R203	1-249-437-11	CARBON	47K	5%	1/6W
R204	1-249-417-11	CARBON	1K	5%	1/6W
R205	1-249-437-11	CARBON	47K	5%	1/6W
R206	1-249-437-11	CARBON	47K	5%	1/6W
R207	1-249-437-11	CARBON	47K	5%	1/6W
R208	1-249-437-11	CARBON	47K	5%	1/6W
R209	1-249-419-11	CARBON	1.5K	5%	1/6W
R210	1-249-419-11	CARBON	1.5K	5%	1/6W
R211	1-249-441-11	CARBON	100K	5%	1/6W
R212	1-249-441-11	CARBON	100K	5%	1/6W
R302	1-249-419-11	CARBON	1.5K	5%	1/6W
R303	1-249-435-11	CARBON	33K	5%	1/6W
R304	1-249-441-11	CARBON	100K	5%	1/6W
R305	1-249-435-11	CARBON	33K	5%	1/6W
R306	1-249-435-11	CARBON	33K	5%	1/6W
R307	1-249-423-11	CARBON	3.3K	5%	1/6W
R308	1-249-425-11	CARBON	4.7K	5%	1/6W
R309	1-249-417-11	CARBON	1K	5%	1/6W
R310	1-249-405-11	CARBON	100	5%	1/6W
R311	1-249-405-11	CARBON	100	5%	1/6W
R312	1-249-437-11	CARBON	47K	5%	1/6W
R313	1-249-414-11	CARBON	560	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R314	1-249-421-11	CARBON	2.2K	5%	1/6W
R315	1-249-435-11	CARBON	33K	5%	1/6W
R316	1-249-416-11	CARBON	820	5%	1/6W
R317	1-249-410-11	CARBON	270	5%	1/6W
R318	1-249-425-11	CARBON	4.7K	5%	1/6W
R319	1-249-425-11	CARBON	4.7K	5%	1/6W
R320	1-249-437-11	CARBON	47K	5%	1/6W
R321	1-247-885-00	CARBON	180K	5%	1/6W
R322	1-249-414-11	CARBON	560	5%	1/6W
R323	1-249-416-11	CARBON	820	5%	1/6W
R324	1-249-410-11	CARBON	270	5%	1/6W
R325	1-249-421-11	CARBON	2.2K	5%	1/6W
R326	1-249-425-11	CARBON	4.7K	5%	1/6W
R327	1-249-425-11	CARBON	4.7K	5%	1/6W
R401	1-249-389-11	CARBON	4.7	5%	1/6W
R402	1-215-476-00	CARBON	200K	5%	1/6W
R403	1-249-433-11	CARBON	22K	5%	1/6W
R404	1-249-411-11	CARBON	330	5%	1/6W
R405	1-249-429-11	CARBON	10K	5%	1/6W
R406	1-249-429-11	CARBON	10K	5%	1/6W
R407	1-249-417-11	CARBON	1K	5%	1/6W
R408	1-249-417-11	CARBON	1K	5%	1/6W
R409	1-249-429-11	CARBON	10K	5%	1/6W
R411	1-249-429-11	CARBON	10K	5%	1/6W
R412	1-249-429-11	CARBON	10K	5%	1/6W
R413	1-249-429-11	CARBON	10K	5%	1/6W
R414	1-249-429-11	CARBON	10K	5%	1/6W
R415	1-249-429-11	CARBON	10K	5%	1/6W
R416	1-215-493-00	CARBON	1M	5%	1/6W
R417	1-249-423-11	CARBON	3.3K	5%	1/6W
R418	1-249-437-11	CARBON	47K	5%	1/6W
RD01	1-501-270-00	ANTENNA, TELESCOPIC			
RT101	1-228-996-00	RES, ADJ, CARBON 47K			
RT102	1-230-629-11	RES, ADJ, CARBON 3.3K			
S301	1-554-303-21	SWITCH, KEY BOARD (PRESET 1)			
S302	1-554-303-21	SWITCH, KEY BOARD (PRESET 2)			
S303	1-554-303-21	SWITCH, KEY BOARD (PRESET 3)			
S304	1-554-303-21	SWITCH, KEY BOARD (PRESET 4)			
S305	1-554-303-21	SWITCH, KEY BOARD (PRESET 5)			
S306	1-554-303-21	SWITCH, KEY BOARD (PRESET 6)			
S307	1-554-303-21	SWITCH, KEY BOARD (PRESET 7)			
S308	1-554-303-21	SWITCH, KEY BOARD (PRESET 8)			
S309	1-554-303-21	SWITCH, KEY BOARD (PRESET 9)			
S310	1-554-303-21	SWITCH, KEY BOARD (MEMORY)			
S311	1-554-303-21	SWITCH, KEY BOARD (PRESET 0)			
S312	1-554-303-21	SWITCH, KEY BOARD (ENTER)			
S313	1-570-876-11	SWITCH, KEY BOARD (MEMORY SCAN)			
S314	1-570-876-11	SWITCH, KEY BOARD (TUNING: +)			
S315	1-570-876-11	SWITCH, KEY BOARD (TUNING: -)			
S316	1-570-876-11	SWITCH, KEY BOARD (BAND)			
S317	1-570-876-11	SWITCH, KEY BOARD (STEREO MUTING)			
TB001	1-536-708-00	TERMINAL BOARD, PUSH 4P			
X201	1-567-250-11	OSCILLATOR, CERAMIC			
X301	1-567-736-11	VIBRATOR, CRYSTAL			
X401	1-527-532-00	OSCILLATOR, CERAMIC			

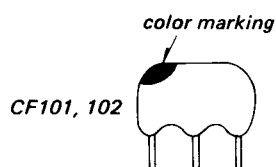
FH-215R
FH-1215CD

FM STEREO/FM-AM TUNER [ST-215]

E Model

Note on Ceramic Filter (CF101, 102) Replacement and Diode D314, 315 Connection.

This set employs two ceramic filters (CF101, 102) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D314, 315) connection is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



○: connect
X: not connect

Ceramic filter		D314, 315 connection		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	*A (D314)	*B (D315)	
White	10.750	○	X	10.750
Red	10.700	X	X	10.700
Black	10.650	X	○	10.650

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same color coding should be used for CF101 and CF102.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

SECTION 1 ADJUSTMENTS

FM SECTION

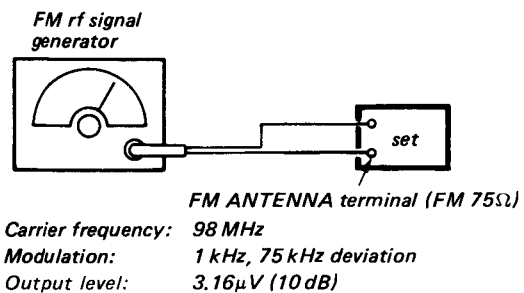
Setting:

BAND selector switch: FM

Note: FM discriminator alignment should be made after FM tracking adjustment.

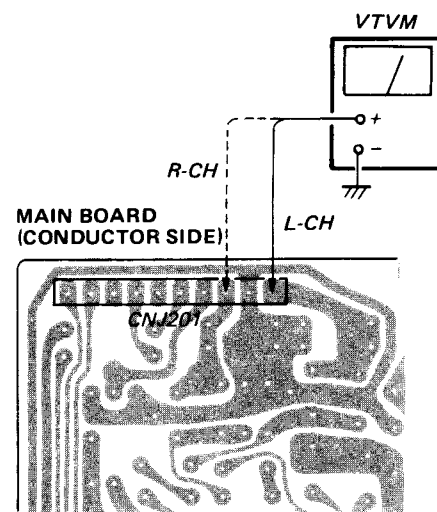
FM Tracking Adjustment

Setting:



Procedure:

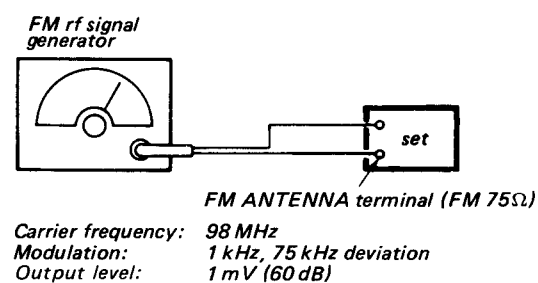
1. Push TUNING (+, -) button for 98 MHz.
2. Approach L002 and L003 not to touch each other.
3. Adjust L001 and L003, and repeat the adjustment 2 - 3 times for maximum VTVM reading.



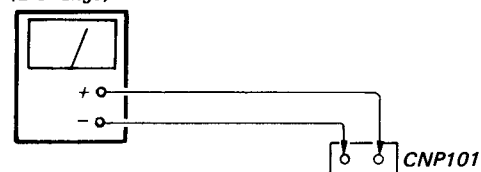
CNJ201

FM Discriminator Alignment (NULL Check)

Setting:

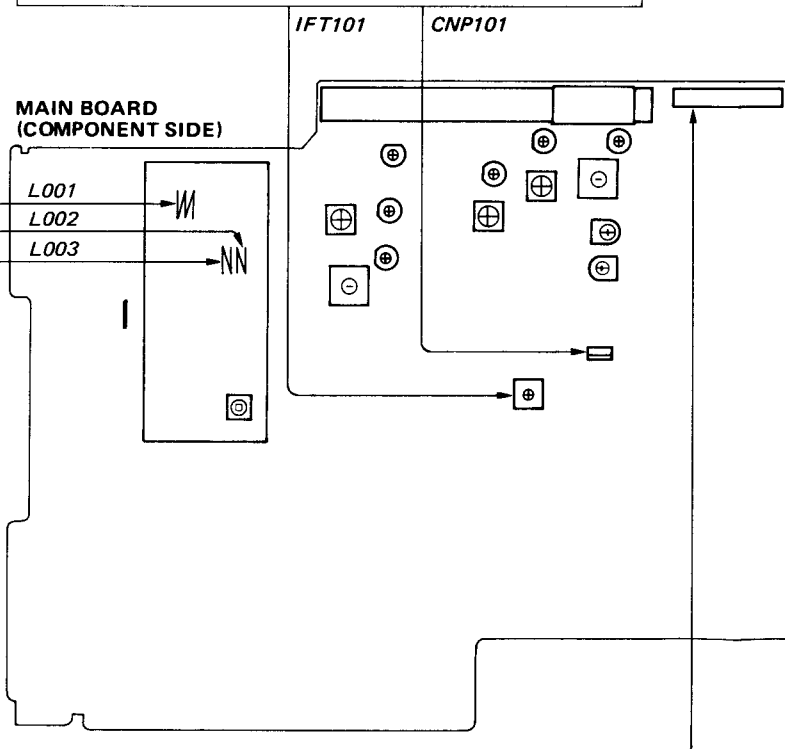


VOM
(DC range)



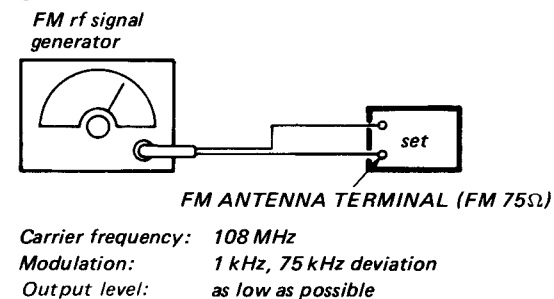
Procedure:

1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.



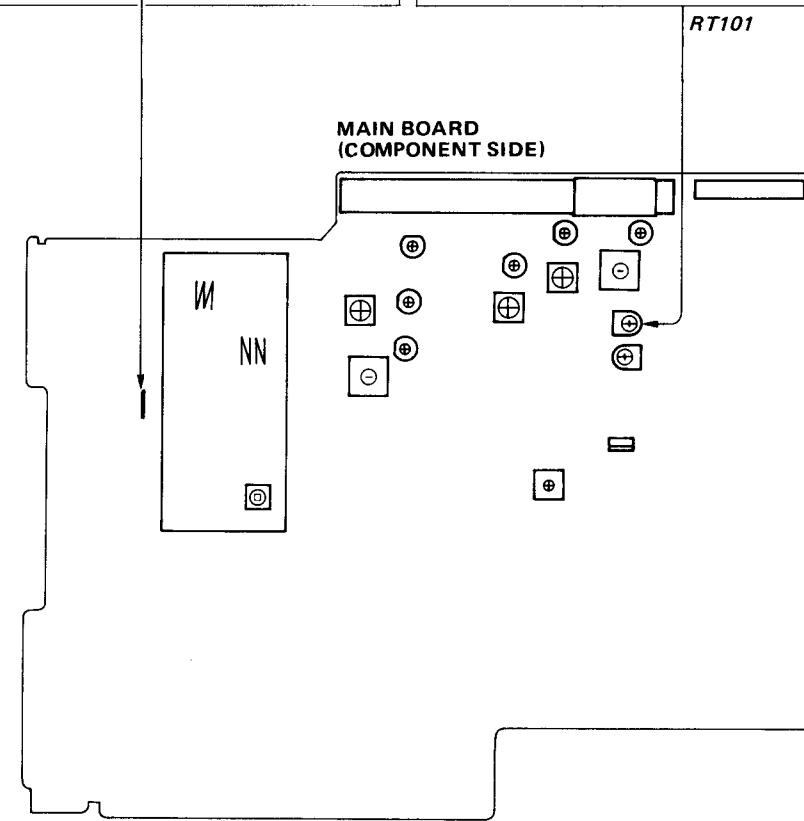
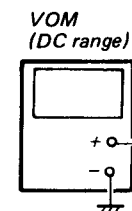
FM OSC Voltage Adjustment

Setting:



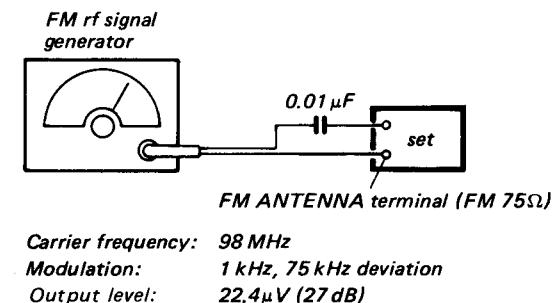
Procedure:

1. Push the TUNING (+, -) button for 108 MHz.
2. Adjust L005 for 8 - 8.5 V reading on the VOM.



FM TUNED Indication Lighting Level Adjustment

Setting:



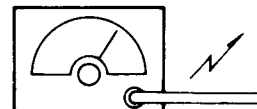
Procedure:

1. Confirm that the MUTING indicator lights up on the display window.
2. Tune the set to 98 MHz.
3. Adjust RT101 so that the TUNED indicator goes on.

MW SECTION**Setting:**

BAND selector switch: MW

AM rf signal generator



30% amplitude modulation by 400 Hz signal

Put the lead-wire antenna close to the set.

- Repeat the procedures in each adjustment several times, and the OSC voltage and tracking adjustments should be finally done by the trimmer capacitors.

MW TRACKING ADJUSTMENT

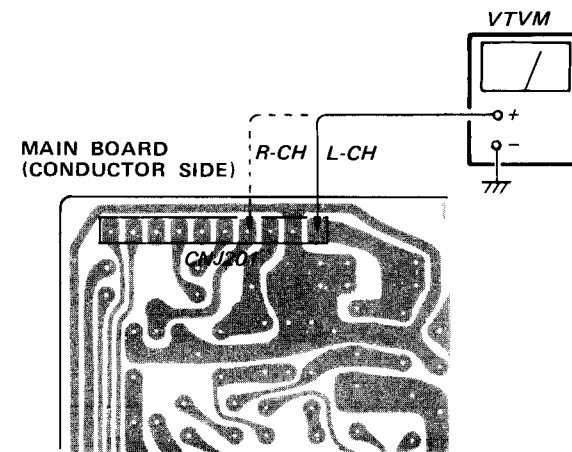
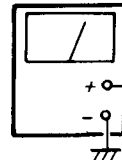
Adjust for a maximum reading on VTVM.

600 kHz	L022
1,400 kHz	CT021

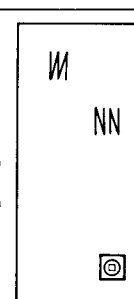
MW OSC Voltage Adjustment**Procedure:**

1. Tune the set to 530 kHz by pressing TUNING (+, -) button.
2. Press the button for 1,611 kHz. Adjust CT022 for 8 – 8.5 V VOM reading.

VOM (DC range)



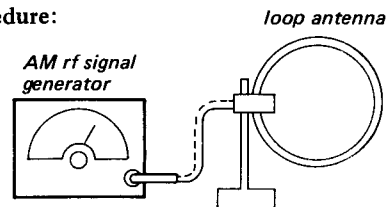
MAIN BOARD (COMPONENT SIDE)



RT102

AM Tuned Indication Lighting Level Adjustment

BAND select switch: MW

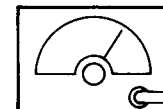
Procedure:Carrier frequency: 999 kHz
Modulation: 400 Hz, 30% modulation

1. Set loop antenna so that the MW antenna input level becomes 0.7 mV/m (57 dB/m).
2. Adjust RT102 so that the LED lights up.

SW SECTION**Setting:**

BAND selector switch: SW1 or 2

AM rf signal generator



30% amplitude modulation by 400 Hz signal

7pF
SW/MW ANTENNA terminal

- Repeat the procedures in each adjustment several times, and the OSC voltage and tracking adjustments should be finally done by the trimmer capacitors.

SW 1 TRACKING ADJUSTMENT

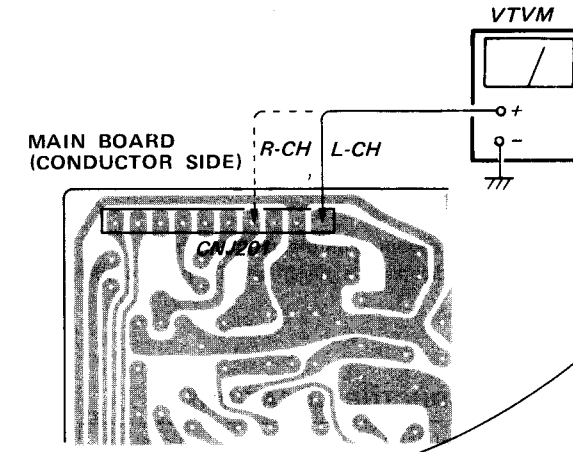
Adjust for maximum reading on VTVM.

7.3 MHz	CT023
3.2 MHz	L024

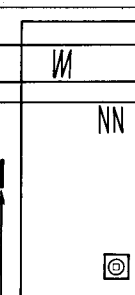
SW 2 TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

21.75 MHz	CT025
9.5 MHz	L026

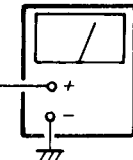


MAIN BOARD (COMPONENT SIDE)

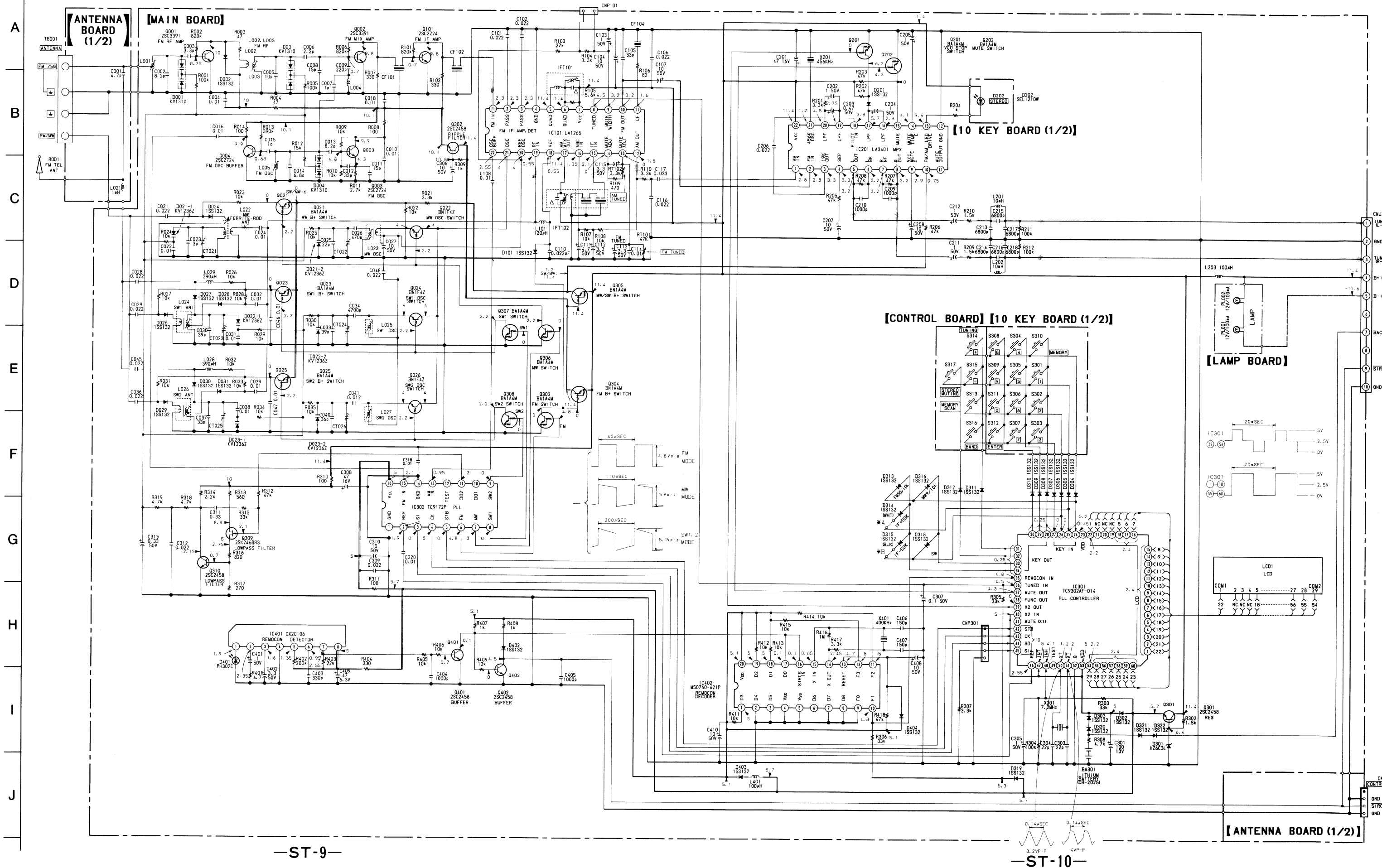
**SW 1/ SW 2 OSC Voltage Adjustment****Procedure:**

1. Set BAND selector switch to SW 1.
2. Press TUNING (+, -) button for 3.2 MHz. Adjust L025 for 1 – 1.1 V VOM reading.
3. Press the button for 7.3 MHz. Adjust CT024 for 8 – 8.5 V reading.
4. Set BAND selector switch to SW 2.
5. Press TUNING (+, -) button for 9.5 MHz. Adjust L027 for 1 – 1.1 V reading.
6. Press the button for 21.75 MHz. Adjust CT026 for 8 – 8.5 V VOM reading.

VOM (DC range)

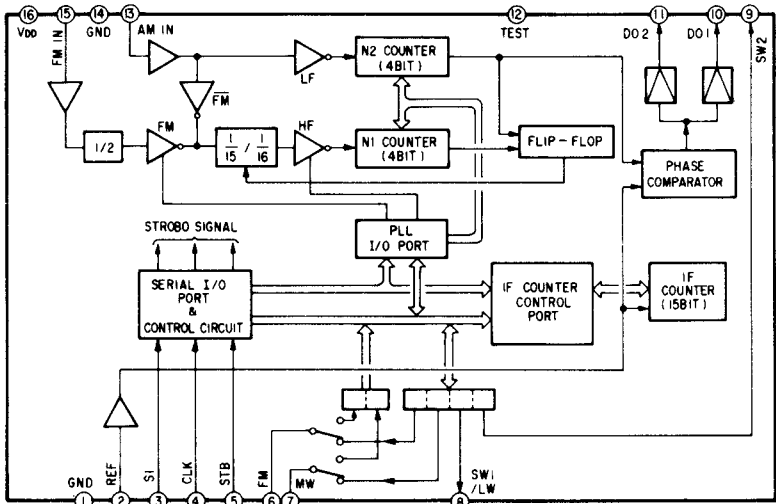


2-2. SCHEMATIC DIAGRAM

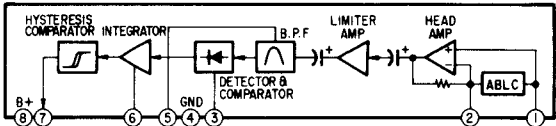


SECTION 3
EXPLODED VIEW AND PARTS LIST

IC302 TC9172P



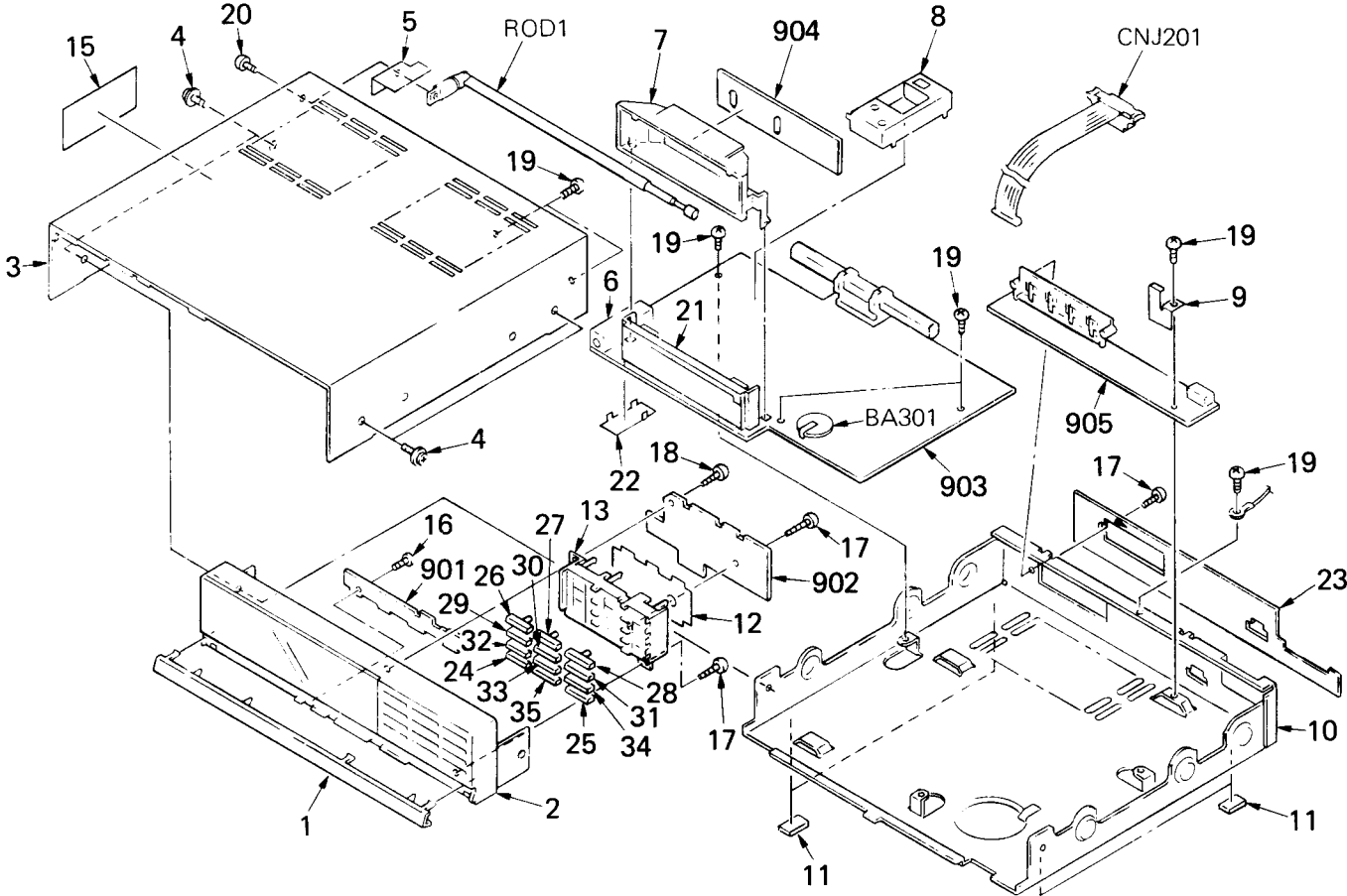
IC401 CX20106A



• Semiconductor Lead Layouts

1SS132 HZ6C2L 	KV1236Z 	LA1265 LA3401 	2SC3391-B 2SC2724-C 2SC3402 2SA1348 2SC634SP
KV1310 	SEL2210S-C 	CX20106A 	BN1F4Z
PH302C 	TC9172P 	TC9302AF-014 	
	M50760-421P 	2SK246-GR2 	

NOTE:
• The mechanical parts with no reference number in the exploded views are not supplied.
• Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
• The construction parts of an assembled part are indicated with a collation number in the remark column.
• Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE (WHITE)
Cabinet's Color Parts' Color



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	4-919-616-01	PANEL, CONTROL		23	*4-919-613-01	COVER, REAR	
2	X-4910-305-1	PANEL ASSY		24	4-920-175-01	BUTTON (MEMORY)	
3	4-920-137-01	CASE		25	4-920-175-11	BUTTON (ENTER)	
4	4-886-821-21	SCREW, M3 CASE STOPPER		26	4-920-176-01	BUTTON (1)	
5	*4-919-611-01	BRACKET, ANT		27	4-920-176-11	BUTTON (2)	
6	*4-909-705-01	PLATE, SHIELD		28	4-920-176-21	BUTTON (3)	
7	*4-917-275-01	HOUSE, LAMP		29	4-920-176-31	BUTTON (4)	
8	*4-874-704-01	CASE, SHIELD		30	4-920-176-41	BUTTON (5)	
9	*4-920-156-01	PLATE (B), SHIELD		31	4-920-176-51	BUTTON (6)	
10	*4-919-617-01	CHASSIS		32	4-920-176-61	BUTTON (7)	
11	4-919-608-01	FOOT		33	4-920-176-71	BUTTON (8)	
12	*4-919-607-01	SPACER		34	4-920-176-81	BUTTON (9)	
13	*4-919-614-01	RETAINER, BUTTON		35	4-920-176-91	BUTTON (0)	
15	*4-920-134-01	LABEL, MODEL NUMBER (E)		901	*1-622-168-11	PC BOARD, CONTROL	
16	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		902	*1-622-167-11	PC BOARD, 10 KEY	
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		903	*A-4351-576-A	MOUNTED PCB, TUNER	
18	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		905	*1-622-169-11	PC BOARD, ANTENNA	
19	7-682-147-01	SCREW +BVTT 3X6 (S)		904	*1-622-170-11	PC BOARD, LAMP	
20	7-682-547-09	SCREW +B 3X6		BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)	
21	*4-909-633-01	ILLUMINATOR		ROD1	1-501-270-00	ANTENNA, TELESCOPIC	
22	*4-920-149-01	PLATE (A), SHIELD		CNJ201	1-559-163-11	CORD (WITH CONNECTOR) 10P	

SECTION 3

EXPLODED VIEW AND PARTS LIST

NOTE:

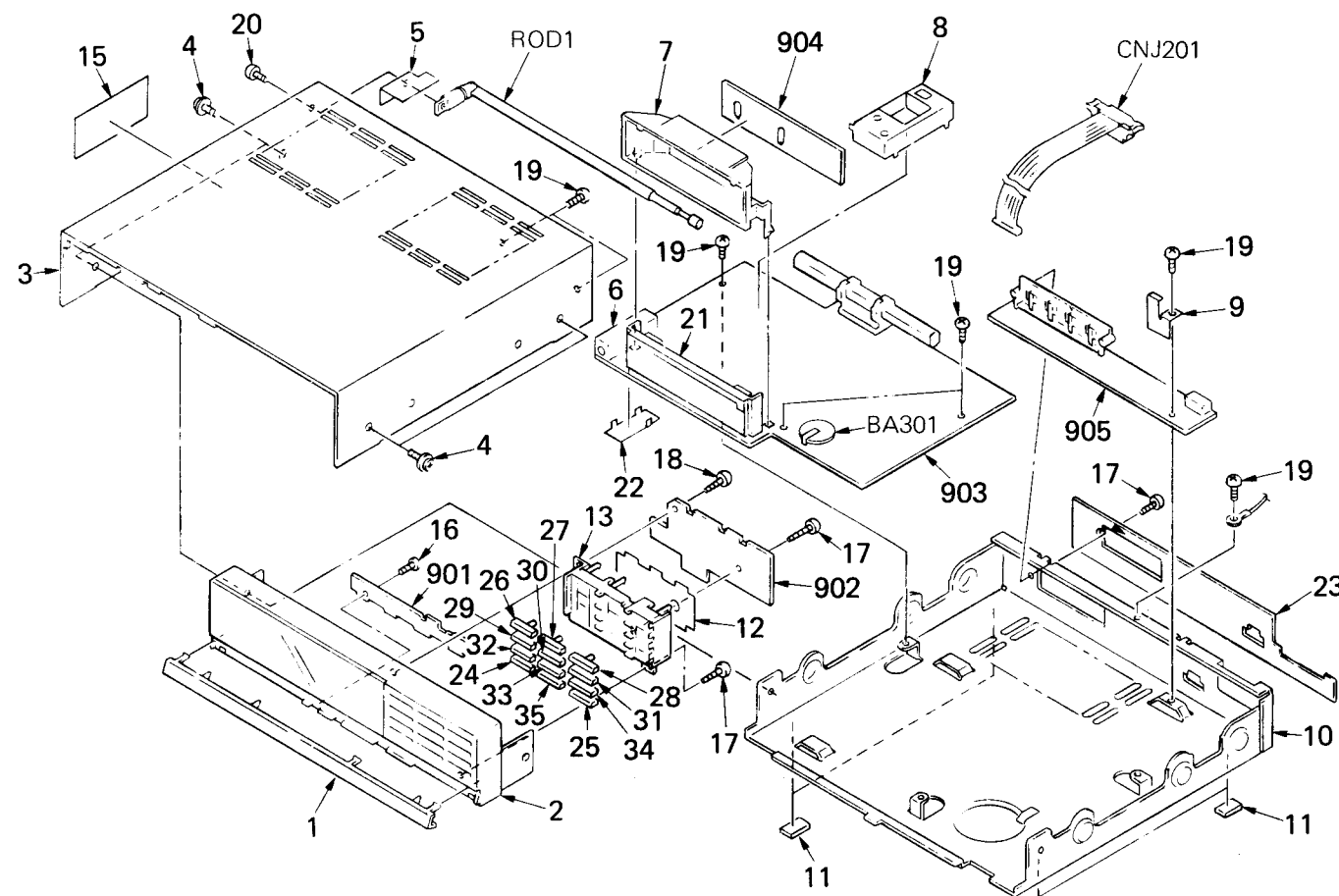
The mechanical parts with no reference number in the exploded views are not supplied.

Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The construction parts of an assembled part are indicated with a collation number in the remark column.

Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE (WHITE)

Cabinet's Color Parts' Color



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	4-919-616-01	PANEL, CONTROL		23	*4-919-613-01	COVER, REAR	
2	X-4910-305-1	PANEL ASSY		24	4-920-175-01	BUTTON (MEMORY)	
3	4-920-137-01	CASE		25	4-920-175-11	BUTTON (ENTER)	
4	4-886-821-21	SCREW, M3 CASE STOPPER		26	4-920-176-01	BUTTON (1)	
5	*4-919-611-01	BRACKET, ANT		27	4-920-176-11	BUTTON (2)	
6	*4-909-705-01	PLATE, SHIELD		28	4-920-176-21	BUTTON (3)	
7	*4-917-275-01	HOUSE, LAMP		29	4-920-176-31	BUTTON (4)	
8	*4-874-704-01	CASE, SHIELD		30	4-920-176-41	BUTTON (5)	
9	*4-920-156-01	PLATE (B), SHIELD		31	4-920-176-51	BUTTON (6)	
10	*4-919-617-01	CHASSIS		32	4-920-176-61	BUTTON (7)	
11	4-919-608-01	FOOT		33	4-920-176-71	BUTTON (8)	
12	*4-919-607-01	SPACER		34	4-920-176-81	BUTTON (9)	
13	*4-919-614-01	RETAINER, BUTTON		35	4-920-176-91	BUTTON (0)	
15	*4-920-134-01	LABEL, MODEL NUMBER (E)		901	*1-622-168-11	PC BOARD, CONTROL	
16	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		902	*1-622-167-11	PC BOARD, 10 KEY	
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		903	*A-4351-576-A	MOUNTED PCB, TUNER	
18	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		905	*1-622-169-11	PC BOARD, ANTENNA	
19	7-682-147-01	SCREW +BVTT 3X6 (S)		904	*1-622-170-11	PC BOARD, LAMP	
20	7-682-547-09	SCREW +B 3X6		BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)	
21	*4-909-633-01	ILLUMINATOR		ROD1	1-501-270-00	ANTENNA, TELESCOPIC	
22	*4-920-149-01	PLATE (A), SHIELD		CNJ201	1-559-163-11	CORD (WITH CONNECTOR) 10P	

SECTION 4

ELECTRICAL PARTS LIST

NOTE:

Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

All resistors are in ohms.

F: nonflammable

COILS

MMH: mH, UH: μH

SEMICONDUCTORS

In each case, U: μ, for example:

UA....: μA..., UPA....: μPA..., UPC....: μPC,

UPD....: μPD...

ELECTRICAL PARTS						ELECTRICAL PARTS					
Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
901	*1-622-168-11	PC BOARD, CONTROL				C045	1-101-005-00	CERAMIC	0.022MF		50V
902	*1-622-167-11	PC BOARD, 10 KEY				C046	1-161-379-00	CERAMIC	0.01MF	20%	16V
903	*A-4351-576-A	MOUNTED PCB, TUNER				C047	1-161-379-00	CERAMIC	0.01MF	20%	16V
904	*1-622-170-11	PC BOARD, LAMP				C048	1-101-005-00	CERAMIC	0.022MF		50V
905	*1-622-169-11	PC BOARD, ANTENNA				C101	1-101-005-00	CERAMIC	0.022MF		50V
						C102	1-101-005-00	CERAMIC	0.022MF		50V
BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)				C103	1-124-791-11	ELECT	1MF	20%	50V
C001	1-162-195-31	CERAMIC	4.7PF	10%	50V	C104	1-123-875-91	ELECT	10MF	20%	50V
C002	1-162-198-31	CERAMIC	8.2PF	10%	50V	C105	1-162-211-31	CERAMIC	33PF	5%	50V
C003	1-162-193-31	CERAMIC	3.3PF	10%	50V						
C004	1-161-379-00	CERAMIC	0.01MF	20%	16V	C106	1-101-005-00	CERAMIC	0.022MF		50V
C005	1-162-199-31	CERAMIC	10PF	5%	50V	C107	1-123-875-91	ELECT	10MF	20%	50V
C006	1-162-191-31	CERAMIC	2.2PF	10%	50V	C108	1-161-379-00	CERAMIC	0.01MF	20%	16V
C007	1-162-187-31	CERAMIC	1PF	20%	50V	C110	1-101-005-00	CERAMIC	0.022MF		50V
C008	1-162-203-31	CERAMIC	15PF	5%	50V	C111	1-124-927-11	ELECT	4.7MF	20%	50V
C009	1-162-286-31	CERAMIC	220PF	10%	50V	C112	1-124-905-11	ELECT	3.3MF	20%	50V
C010	1-161-379-00	CERAMIC	0.01MF	20%	16V	C113	1-124-905-11	ELECT	3.3MF	20%	50V
C011	1-162-203-31	CERAMIC	15PF	5%	50V	C114	1-161-379-00	CERAMIC	0.01MF	20%	16V
C012	1-162-211-31	CERAMIC	33PF	5%	50V	C115	1-124-905-11	ELECT	3.3MF	20%	50V
C013	1-162-198-31	CERAMIC	8.2PF	10%	50V	C116	1-101-005-00	CERAMIC	0.022MF		50V
C014	1-162-197-31	CERAMIC	6.8PF	10%	50V	C117	1-130-489-00	MYLAR	0.033MF	5%	50V
C015	1-162-187-31	CERAMIC	1PF	20%	50V	C201	1-123-332-00	ELECT	47MF	20%	16V
C016	1-161-379-00	CERAMIC	0.01MF	20%	16V	C202	1-124-791-11	ELECT	1MF	20%	50V
C018	1-161-379-00	CERAMIC	0.01MF	20%	16V	C203	1-124-902-00	ELECT	0.47MF	20%	50V
C021	1-101-005-00	CERAMIC	0.022MF		50V	C204	1-124-791-11	ELECT	1MF	20%	50V
C022	1-161-379-00	CERAMIC	0.01MF	20%	16V	C205	1-124-791-11	ELECT	1MF	20%	50V
C023	1-102-936-00	CERAMIC	3PF	0.25PF	50V	C206	1-161-494-00	CERAMIC	0.022MF	30%	25V
C024	1-161-379-00	CERAMIC	0.01MF	20%	16V	C207	1-123-875-91	ELECT	10MF	20%	50V
C025	1-102-959-00	CERAMIC	22PF	5%	50V	C208	1-123-875-91	ELECT	10MF	20%	50V
C026	1-130-014-00	FILM	470PF	5%	50V	C209	1-102-074-00	CERAMIC	0.001MF	10%	50V
C027	1-123-875-91	ELECT	10MF	20%	50V	C210	1-102-074-00	CERAMIC	0.001MF	10%	50V
C028	1-101-005-00	CERAMIC	0.022MF		50V	C211	1-124-791-11	ELECT	1MF	20%	50V
C029	1-101-005-00	CERAMIC	0.022MF		50V	C212	1-124-791-11	ELECT	1MF	20%	50V
C030	1-102-965-00	CERAMIC	39PF	5%	50V	C213	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C031	1-161-379-00	CERAMIC	0.01MF	20%	16V	C214	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C032	1-161-379-00	CERAMIC	0.01MF	20%	16V	C215	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C033	1-102-965-00	CERAMIC	39PF	5%	50V	C216	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C034	1-130-479-00	MYLAR	0.0047MF	5%	50V	C217	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C036	1-101-005-00	CERAMIC	0.022MF		50V	C218	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C037	1-102-963-00	CERAMIC	33PF	5%	50V	C219	1-101-005-00	CERAMIC	0.022MF		50V
C038	1-161-379-00	CERAMIC	0.01MF	20%	16V	C301	1-124-443-00	ELECT	100MF	20%	10V
C039	1-161-379-00	CERAMIC	0.01MF	20%	16V	C303	1-102-959-00	CERAMIC	22PF	5%	50V
C040	1-102-964-00	CERAMIC	36PF	5%	50V	C304	1-102-959-00	CERAMIC	22PF	5%	50V
C041	1-130-484-00	MYLAR	0.012MF	5%	50V	C305	1-124-791-11	ELECT	1MF	20%	50V
						C306	1-123-875-91	ELECT	10MF	20%	50V
						C307	1-124-463-00	ELECT	0.1MF	20%	50V
						C308	1-123-332-00	ELECT	47MF	20%	16V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C309	1-101-005-00	CERAMIC 0.022MF 50V
C310	1-123-875-91	ELECT 10MF 20% 50V
C311	1-136-171-00	FILM 0.33MF 5% 50V
C312	1-130-487-00	MYLAR 0.022MF 5% 50V
C313	1-124-252-00	ELECT 0.33MF 20% 50V
C318	1-161-379-00	CERAMIC 0.01MF 20% 16V
C320	1-161-379-00	CERAMIC 0.01MF 20% 16V
C401	1-124-791-11	ELECT 1MF 20% 50V
C402	1-124-905-11	ELECT 3.3MF 20% 50V
C403	1-162-288-31	CERAMIC 330PF 10% 50V
C404	1-162-294-31	CERAMIC 0.001MF 10% 50V
C405	1-162-294-31	CERAMIC 0.001MF 10% 50V
C406	1-101-361-00	CERAMIC 150PF 5% 50V
C407	1-101-361-00	CERAMIC 150PF 5% 50V
C408	1-123-875-91	ELECT 10MF 20% 50V
C409	1-124-224-00	ELECT 47MF 20% 6.3V
C410	1-123-875-91	ELECT 10MF 20% 50V
CF101	1-527-968-00	FILTER, CERAMIC
CF102	1-527-968-00	FILTER, CERAMIC
CF104	1-527-981-00	FILTER, CERAMIC
CNJ201	1-559-163-11	CORD (WITH CONNECTOR) 10P
CNP001*1-560-060-00	PIN, CONNECTOR 2P	
CNP002*1-564-338-00	PIN, CONNECTOR 4P	
CNP101*1-560-060-00	PIN, CONNECTOR 2P	
CNP201*1-564-336-00	PIN, CONNECTOR 2P	
CNP301*1-560-063-00	PIN, CONNECTOR 5P	
CNP302*1-560-064-00	PIN, CONNECTOR 6P	
CNP303*1-564-341-11	PIN, CONNECTOR 7P	
CNP401	1-564-980-11	PIN, CONNECTOR 4P
CNP402*1-560-060-00	PIN, CONNECTOR 2P	
CT021	1-141-227-00	TRIMMER, CERAMIC
CT022	1-141-304-21	TRIMMER, CERAMIC
CT023	1-141-227-00	CAP, CERAMIC TRIMMER
CT024	1-141-227-00	CAP, CERAMIC TRIMMER
CT025	1-141-227-00	CAP, CERAMIC TRIMMER
CT026	1-141-227-00	CAP, CERAMIC TRIMMER
D001	8-719-918-45	DIODE KV1310
D002	8-719-940-76	DIODE 1SS132
D003	8-719-918-45	DIODE KV1310
D004	8-719-918-45	DIODE KV1310
D021	8-719-902-79	DIODE KV1236Z
D022	8-719-902-79	DIODE KV1236Z
D023	8-719-902-79	DIODE KV1236Z
D024	8-719-940-76	DIODE 1SS132
D026	8-719-940-76	DIODE 1SS132
D027	8-719-940-76	DIODE 1SS132
D028	8-719-940-76	DIODE 1SS132
D029	8-719-940-76	DIODE 1SS132
D030	8-719-940-76	DIODE 1SS132
D031	8-719-940-76	DIODE 1SS132
D101	8-719-940-76	DIODE 1SS132
D201	8-719-940-76	DIODE 1SS132
D202	8-719-303-18	DIODE SEL1210W
D301	8-719-910-68	DIODE HZ6C2L
D302	8-719-940-76	DIODE 1SS132
D303	8-719-940-76	DIODE 1SS132
D304	8-719-940-76	DIODE 1SS132
D305	8-719-940-76	DIODE 1SS132
D306	8-719-940-76	DIODE 1SS132
D307	8-719-940-76	DIODE 1SS132

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D308	8-719-940-76	DIODE 1SS132
D309	8-719-940-76	DIODE 1SS132
D310	8-719-940-76	DIODE 1SS132
D311	8-719-940-76	DIODE 1SS132
D312	8-719-940-76	DIODE 1SS132
D313	8-719-940-76	DIODE 1SS132
D314	8-719-940-76	DIODE 1SS132
D315	8-719-940-76	DIODE 1SS132
D316	8-719-940-76	DIODE 1SS132
D318	8-719-940-76	DIODE 1SS132
D319	8-719-940-76	DIODE 1SS132
D320	8-719-940-76	DIODE 1SS132
D321	8-719-940-76	DIODE 1SS132
D322	8-719-940-76	DIODE 1SS132
D401	8-719-123-68	DIODE PH302C
D402	8-719-940-76	DIODE 1SS132
D403	8-719-940-76	DIODE 1SS132
D404	8-719-940-76	DIODE 1SS132
IC101	8-759-801-81	IC LA1265
IC201	8-759-801-80	IC LA3401
IC301	8-759-206-74	IC TC9302AF-014
IC302	8-759-202-63	IC TC9172P
IC401	8-759-602-54	IC CX20106A
IC402	8-759-603-43	IC M50760-421P
IFT101	1-404-659-11	COIL, DISCRIMINATOR
IFT102	1-404-713-11	TRANSFORMER, IF
L001	*1-422-336-11	COIL, AIR-CORE
L002	*1-422-040-00	COIL, AIR-CORE
L003	*1-422-081-00	COIL (WITH CORE)
L004	*1-422-039-00	COIL, AIR-CORE
L005	*1-459-396-00	COIL (WITH CORE)
L021	1-410-577-21	MICRO INDUCTOR 1UH
L022	1-402-152-11	ANTENNA, FERRITE-ROD (MW)
L023	1-406-089-11	COIL (OSC)
L024	1-402-145-11	COIL (ANT)
L025	1-406-205-11	COIL, SW1
L026	1-402-072-11	COIL (ANT) SW2
L027	1-406-106-11	COIL (OSC) SW2
L028	1-410-608-21	MICRO INDUCTOR 390UH
L029	1-410-608-21	MICRO INDUCTOR 390UH
L101	1-410-602-21	MICRO INDUCTOR 120UH
L201	1-408-924-00	MICRO INDUCTOR 10MMH
L202	1-408-924-00	MICRO INDUCTOR 10MMH
L203	1-410-601-21	MICRO INDUCTOR 100UH
L401	1-410-601-21	MICRO INDUCTOR 100UH
LCD1	1-807-453-41	DISPLAY PANEL, LIQUID CRYSTAL
PL001	1-518-527-51	LAMP, PILOT
PL002	1-518-527-51	LAMP, PILOT
Q001	8-729-304-38	TRANSISTOR 2SC3391-B
Q002	8-729-304-38	TRANSISTOR 2SC3391-B
Q003	8-729-672-42	TRANSISTOR 2SC2724-C
Q004	8-729-672-42	TRANSISTOR 2SC2724-C
Q021	9-986-159-01	TRANSISTOR 2SA1348
Q022	8-729-115-33	TRANSISTOR BN1F4Z
Q023	9-986-159-01	TRANSISTOR 2SA1348
Q024	8-729-115-33	TRANSISTOR BN1F4Z
Q025	9-986-159-01	TRANSISTOR 2SA1348
Q026	8-729-115-33	TRANSISTOR BN1F4Z
Q101	8-729-672-42	TRANSISTOR 2SC2724-C
Q201	8-729-806-28	TRANSISTOR 2SC3402

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q202	8-729-806-28	TRANSISTOR 2SC3402
Q301	8-729-600-27	TRANSISTOR 2SC634SP
Q302	8-729-600-27	TRANSISTOR 2SC634SP
Q303	8-729-806-28	TRANSISTOR 2SC3402
Q304	9-986-159-01	TRANSISTOR 2SA1348
Q305	9-986-159-01	TRANSISTOR 2SA1348
Q306	8-729-806-28	TRANSISTOR 2SC3402
Q307	8-729-806-28	TRANSISTOR 2SC3402
Q308	8-729-806-28	TRANSISTOR 2SC3402
Q309	8-729-201-56	TRANSISTOR 2SK246GR2
Q310	8-729-600-27	TRANSISTOR 2SC634SP
Q401	8-729-600-27	TRANSISTOR 2SC634SP
Q402	8-729-600-27	TRANSISTOR 2SC634SP
R001	1-249-441-11	CARBON 100K 5% 1/6W
R002	1-215-491-00	CARBON 820K 5% 1/6W
R003	1-249-401-11	CARBON 47 5% 1/6W
R004	1-249-401-11	CARBON 47 5% 1/6W
R005	1-249-441-11	CARBON 100K 5% 1/6W
R006	1-215-491-00	CARBON 820K 5% 1/6W
R007	1-249-411-11	CARBON 330 5% 1/6W
R008	1-249-405-11	CARBON 100 5% 1/6W
R009	1-249-429-11	CARBON 10K 5% 1/6W
R010	1-249-429-11	CARBON 10K 5% 1/6W
R011	1-249-422-11	CARBON 2.7K 5% 1/6W
R012	1-249-431-11	CARBON 15K 5% 1/6W
R013	1-215-483-00	CARBON 390K 5% 1/6W
R014	1-249-405-11	CARBON 100 5% 1/6W
R021	1-249-423-11	CARBON 3.3K 5% 1/6W
R022	1-249-429-11	CARBON 10K 5% 1/6W
R023	1-249-429-11	CARBON 10K 5% 1/6W
R024	1-249-429-11	CARBON 10K 5% 1/6W
R025	1-249-429-11	CARBON 10K 5% 1/6W
R026	1-249-429-11	CARBON 10K 5% 1/6W
R027	1-249-429-11	CARBON 10K 5% 1/6W
R028	1-249-429-11	CARBON 10K 5% 1/6W
R029	1-249-429-11	CARBON 10K 5% 1/6W
R030	1-249-429-11	CARBON 10K 5% 1/6W
R031	1-249-429-11	CARBON 10K 5% 1/6W
R032	1-249-429-11	CARBON 10K 5% 1/6W
R033	1-249-429-11	CARBON 10K 5% 1/6W
R034	1-249-429-11	CARBON 10K 5% 1/6W
R035	1-249-429-11	CARBON 10K 5% 1/6W
R101	1-215-491-00	CARBON 820K 5% 1/6W
R102	1-249-411-11	CARBON 330 5% 1/6W
R103	1-249-434-11	CARBON 27K 5% 1/6W
R104	1-249-423-11	CARBON 3.3K 5% 1/6W
R105	1-247-849-00	CARBON 5.6K 5% 1/6W
R106	1-249-404-00	CARBON 82 5% 1/6W
R107	1-249-429-11	CARBON 10K 5% 1/6W
R108	1-249-429-11	CARBON 10K 5% 1/6W
R109	1-249-413-11	CARBON 470 5% 1/6W
R110	1-249-423-11	CARBON 3.3K 5% 1/6W
R201	1-249-423-11	CARBON 3.3K 5% 1/6W
R202	1-249-437-11	CARBON 47K 5% 1/6W
R203	1-249-437-11	CARBON 47K 5% 1/6W
R204	1-249-417-11	CARBON 1K 5% 1/6W
R205	1-249-437-11	CARBON 47K 5% 1/6W
R206	1-249-437-11	CARBON 47K 5% 1/6W
R207	1-249-437-11	CARBON 47K 5% 1/6W
R208	1-249-437-11	CARBON 47K 5% 1/6W
R209	1-249-419-11	CARBON 1.5K 5% 1/6W
R210	1-249-419-11	CARBON 1.5K 5% 1/6W
R211	1-249-441-11	CARBON 100K 5% 1/6W
R212	1-249-441-11	CARBON 100K 5% 1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R302	1-249-419-11	CARBON 1.5K 5% 1/6W
R303	1-249-435-11	CARBON 33K 5% 1/6W
R304	1-249-441-11	CARBON 100K 5% 1/6W
R305	1-249-435-11	CARBON 33K 5% 1/6W
R306	1-249-435-11	CARBON 33K 5% 1/6W
R307	1-249-423-11	CARBON 3.3K 5% 1/6W
R308	1-249-425-11	CARBON 4.7K 5% 1/6W
R309	1-249-417-11	CARBON 1K 5% 1/6W
R310	1-249-405-11	CARBON 100 5% 1/6W
R311	1-249-405-11	CARBON 100 5% 1/6W
R312	1-249-437-11	CARBON 47K 5% 1/6W
R313	1-249-414-11	CARBON 560 5% 1/6W
R314	1-249-421-11	CARBON 2.2K 5% 1/6W
R315	1-249-435-11	CARBON 33K 5% 1/6W
R316	1-249-416-11	CARBON 820 5% 1/6W
R317	1-249-410-11	CARBON 270 5% 1/6W
R318	1-249-425-11	CARBON 4.7K 5% 1/6W
R319	1-249-425-11	CARBON 4.7K 5% 1/6W
R401	1-249-389-11	CARBON 4.7 5% 1/6W
R402	1-215-476-00	CARBON 200K 5% 1/6W
R403	1-249-433-11	CARBON 22K 5% 1/6W
R404	1-249-411-11	CARBON 330 5% 1/6W
R405	1-249-429-11	CARBON 10K 5% 1/6W
R406	1-249-429-11	CARBON 10K 5% 1/6W
R407	1-249-417-11	CARBON 1K 5% 1/6W
R408	1-249-417-11	CARBON 1K 5% 1/6W
R409	1-249-429-11	CARBON 10K 5% 1/6W
R411	1-249-429-11	CARBON 10K 5% 1/6W
R412	1-249-429-11	CARBON 10K 5% 1/6W
R413	1-249-429-11	CARBON 10K 5% 1/6W
R414	1-249-429-11	CARBON 10K 5% 1/6W
R415	1-249-429-11	CARBON 10K 5% 1/6W
R416	1-215-493-00	CARBON 1M 5% 1/6W
R417	1-249-423-11	CARBON 3.3K 5% 1/6W
R418	1-249-437-11	CARBON 47K 5% 1/6W
ROD1	1-501-270-00	ANTENNA, TELESCOPIC
RT101	1-228-996-00	RES, ADJ, CARBON 47K
RT102	1-230-629-11	RES, ADJ, CARBON 3.3K
S301	1-554-303-21	SWITCH, KEY BOARD (PRESET 1)
S302	1-554-303-21	SWITCH, KEY BOARD (PRESET 2)
S303	1-554-303-21	SWITCH, KEY BOARD (PRESET 3)
S304	1-554-303-21	SWITCH, KEY BOARD (PRESET 4)
S305	1-554-303-21	SWITCH, KEY BOARD (PRESET 5)
S306	1-554-303-21	SWITCH, KEY BOARD (PRESET 6)
S307	1-554-303-21	SWITCH, KEY BOARD (PRESET 7)
S308	1-554-303-21	SWITCH, KEY BOARD (PRESET 8)
S309	1-554-303-21	SWITCH, KEY BOARD (PRESET 9)
S310	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S311	1-554-303-21	SWITCH, KEY BOARD (PRESET 0)
S312	1-554-303-21	SWITCH, KEY BOARD (ENTER)
S313	1-570-876-11	SWITCH, KEY BOARD (MEMORY SCAN)
S314	1-570-876-11	SWITCH, KEY BOARD (TUNING: +)
S315	1-570-876-11	SWITCH, KEY BOARD (TUNING: -)
S316	1-570-876-11	SWITCH, KEY BOARD (BAND)
S317	1-570-876-11	SWITCH, KEY BOARD (STEREO MUTING)
TB001	1-536-708-00	TERMINAL BOARD, PUSH 4P
X201	1-567-250-11	OSCILLATOR, CERAMIC
X301	1-567-736-11	VIBRATOR, CRYSTAL
X401	1-527-532-00	OSCILLATOR, CERAMIC

FH-215R

FH-1215CD

INTEGRATED STEREO AMPLIFIER

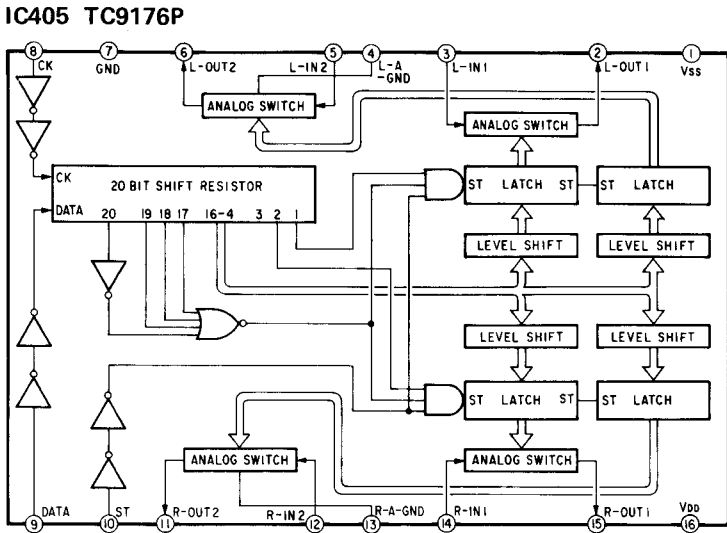
(TA-215)

AEP Model

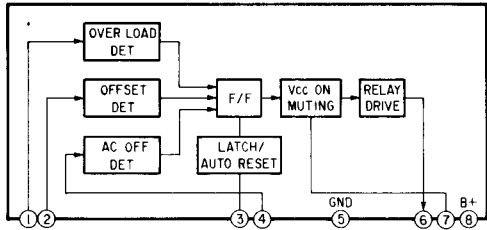
UK Model

E Model

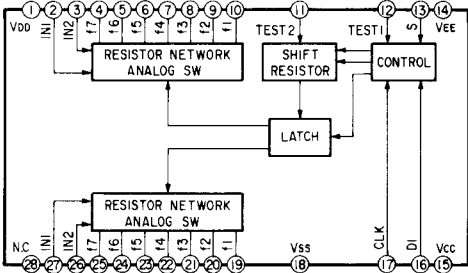
• IC BLOCK DIAGRAMS



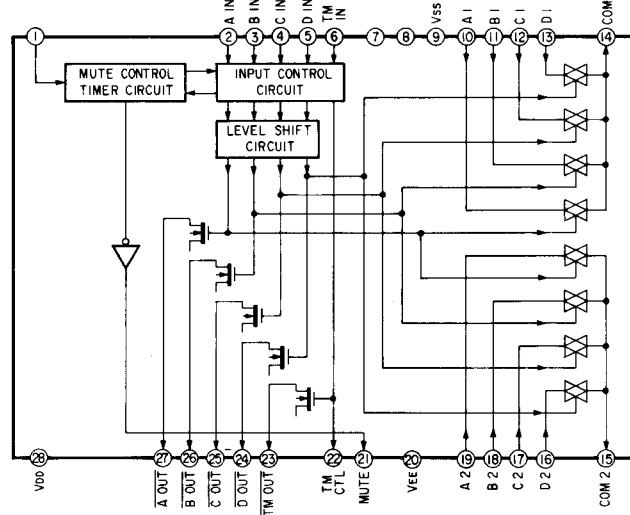
IC701 UPC1237HA



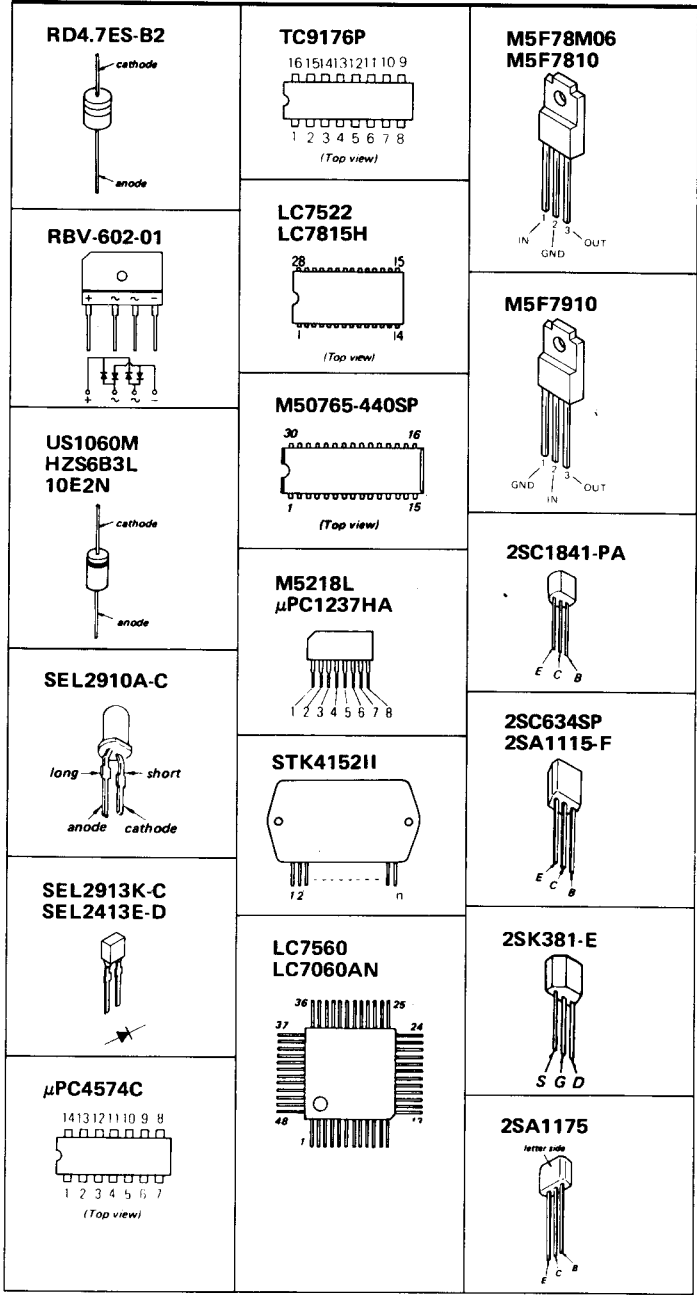
IC402 LC7522



IC102 LC7815H



● Semiconductor Lead Layouts



Note on Mounting Diagram:

- — : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$ 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- : nonflammable resistor.
- : fusible resistor.
- — : B+ bus.
- - - - : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50 $\text{k}\Omega/\text{V}$).

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

● Switches:

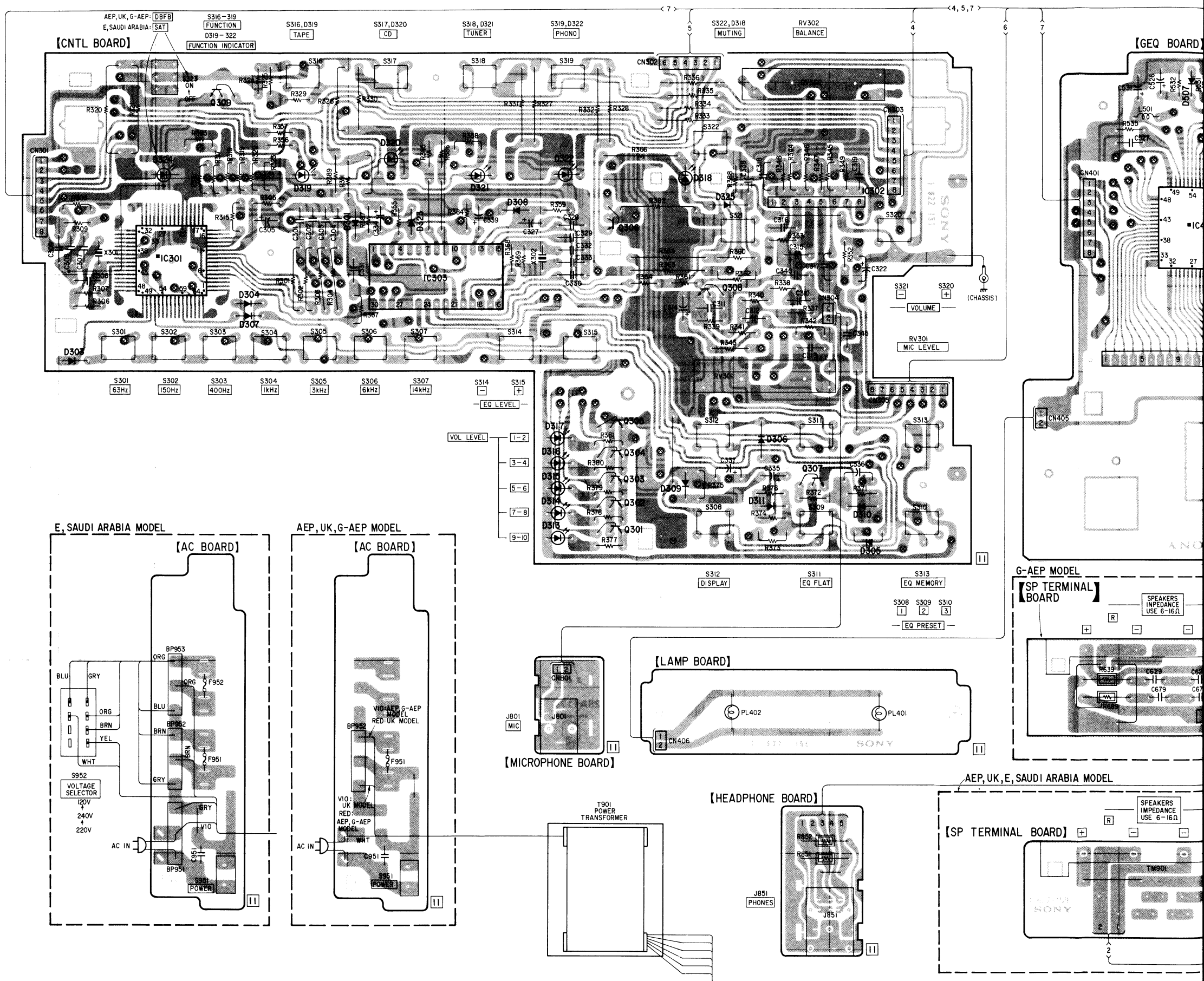
Ref. No.	Switch	Position
S301	63 Hz	OFF
S302	150 Hz	OFF
S303	400 Hz	OFF
S304	1 kHz	OFF
S305	3 kHz	OFF
S306	6 kHz	OFF
S307	14 kHz	OFF
S308	EQ PRESET 1	OFF
S309	EQ PRESET 2	OFF
S310	EQ PRESET 3	OFF
S311	EQ FLAT	OFF
S312	DISPLAY	OFF
S313	EQ MEMORY	OFF
S314	EQ LEVEL; -	OFF
S315	EQ LEVEL; +	OFF
S316	FUNCTION TAPE	OFF
S317	FUNCTION CD	OFF
S318	FUNCTION TUNER	OFF
S319	FUNCTION PHONO	OFF
S320	VOLUME; +	OFF
S321	VOLUME; -	OFF
S322	MUTING	OFF
S323	SAT	OFF
S951	POWER	OFF
S952	VOLTAGE SELECTOR	220 V

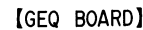
1-1. MOUNTING DIAGRAM

- See page TA-4 for note.
- See page TA-3 for semiconductor lead layouts.

• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D201	F-25	D509	D-17	Q301	F-7
D202	F-26	D510	B-19	Q302	F-7
D301	C-4	D511	C-15	Q303	F-7
D303	D-2	D601	H-21	Q304	E-7
D304	D-3	D701	I-16	Q305	E-7
D305	F-10	D901	H-24	Q306	C-7
D306	E-9	D902	H-25	Q307	F-9
D307	D-3	D903	H-24	Q308	D-8
D308	C-6	D904	H-24	Q309	B-3
D309	F-8	D905	H-24	Q401	C-19
D310	F-10	D906	H-25	Q402	C-19
D311	F-9	D907	F-25	Q403	C-20
D313	F-7	D908	F-25	Q404	C-19
D314	F-7	D909	G-26	Q405	C-17
D315	F-7	D910	F-26	Q406	C-17
D316	E-7			Q407	C-18
D317	E-7	IC101	C-24	Q408	B-20
D318	B-8	IC102	E-25	Q409	B-20
D319	C-4	IC301	C-3	Q410	A-20
D320	B-5	IC302	C-10	Q451	F-19
D321	C-6	IC303	D-5	Q452	F-19
D322	B-7	IC401	C-20	Q453	F-20
D323	C-5	IC402	E-19	Q454	F-19
D324	B-3	IC403	C-16	Q455	F-17
B325	C-8	IC404	C-13	Q456	F-18
D501	B-17	IC405	B-19	Q457	F-18
D502	B-17	IC601	I-20	Q458	B-19
D503	B-17	IC602	G-18	Q459	B-20
D504	B-15	IC701	H-16	Q601	J-20
D505	B-15	IC901	F-24	Q651	I-20
D506	B-14	IC902	F-25	Q701	I-16
D507	B-13	IC903	E-27	Q702	H-16
D508	A-19			Q751	H-16

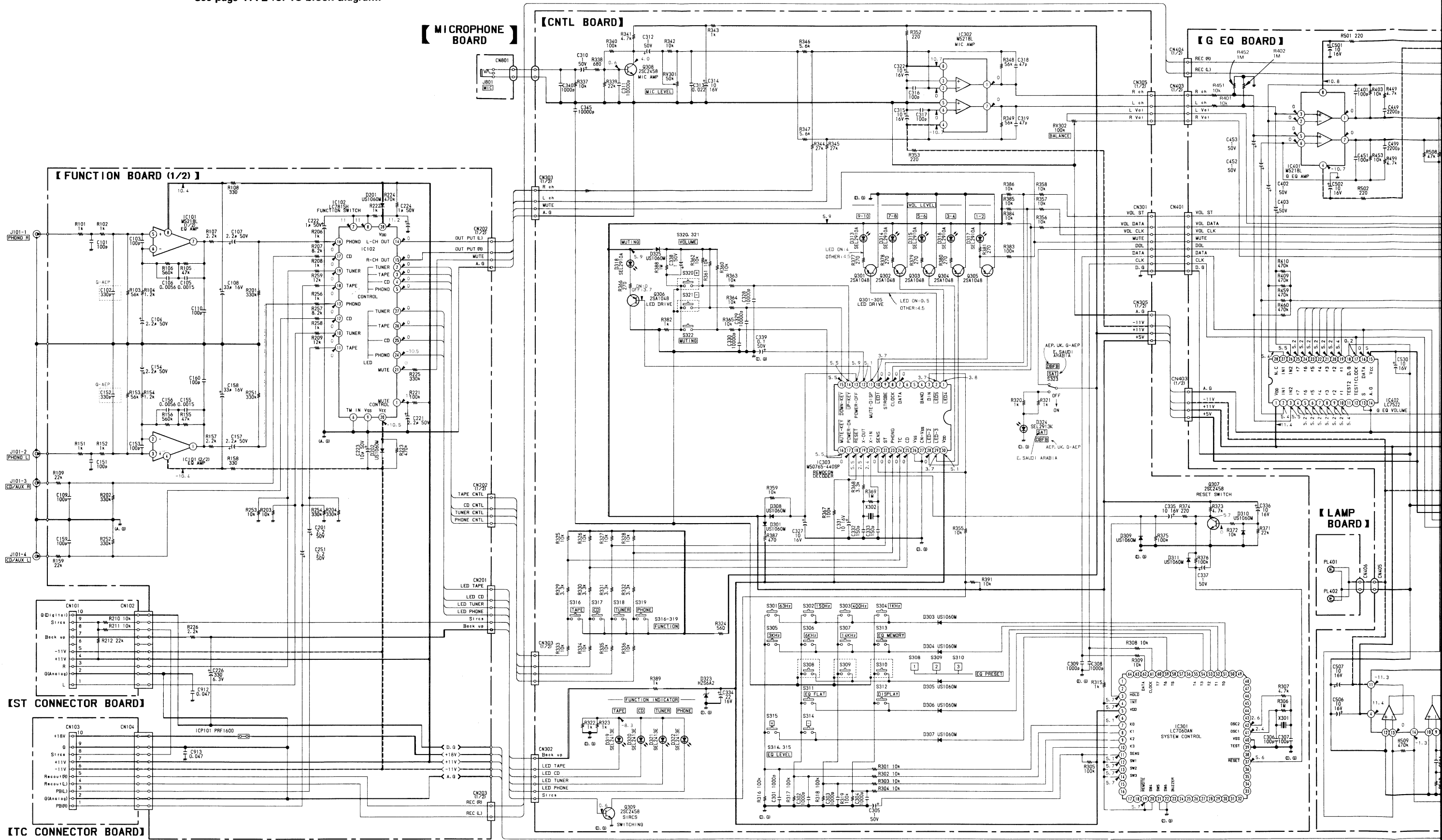


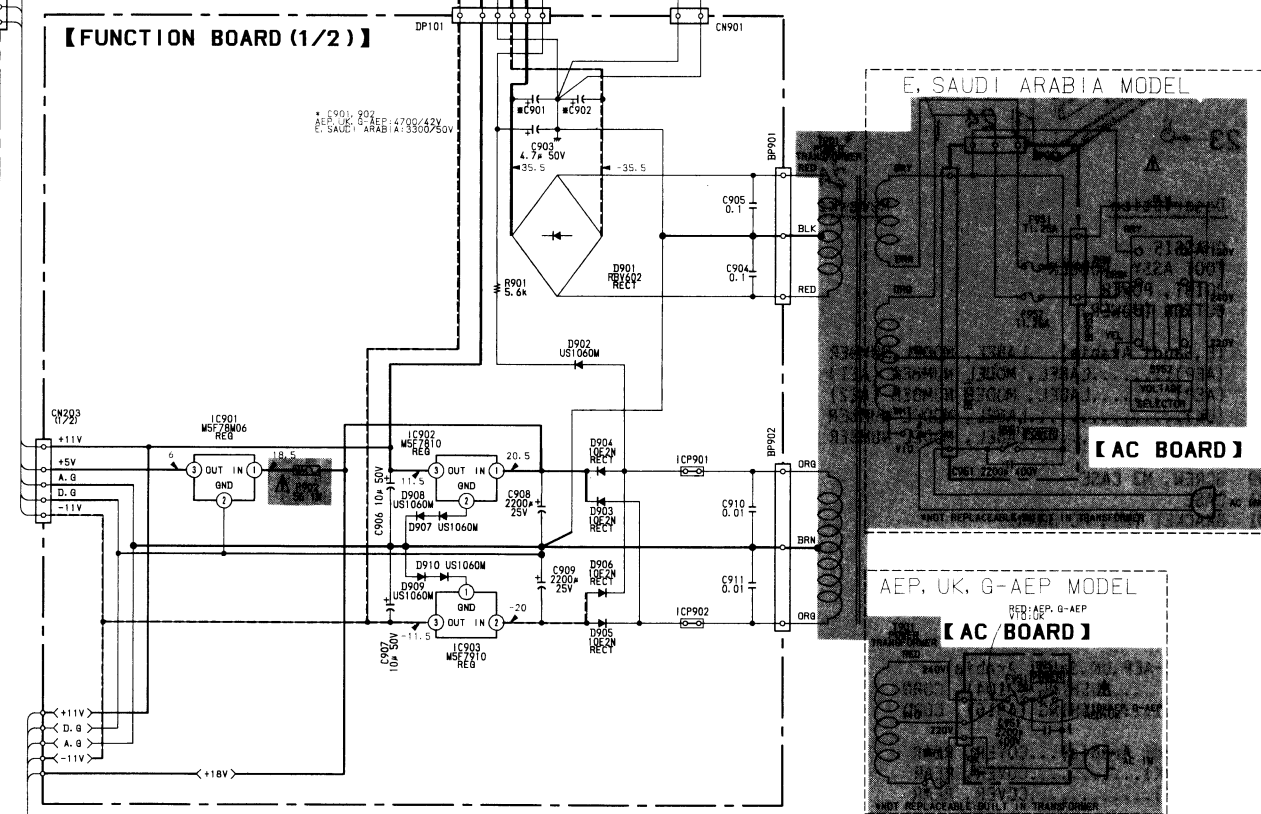
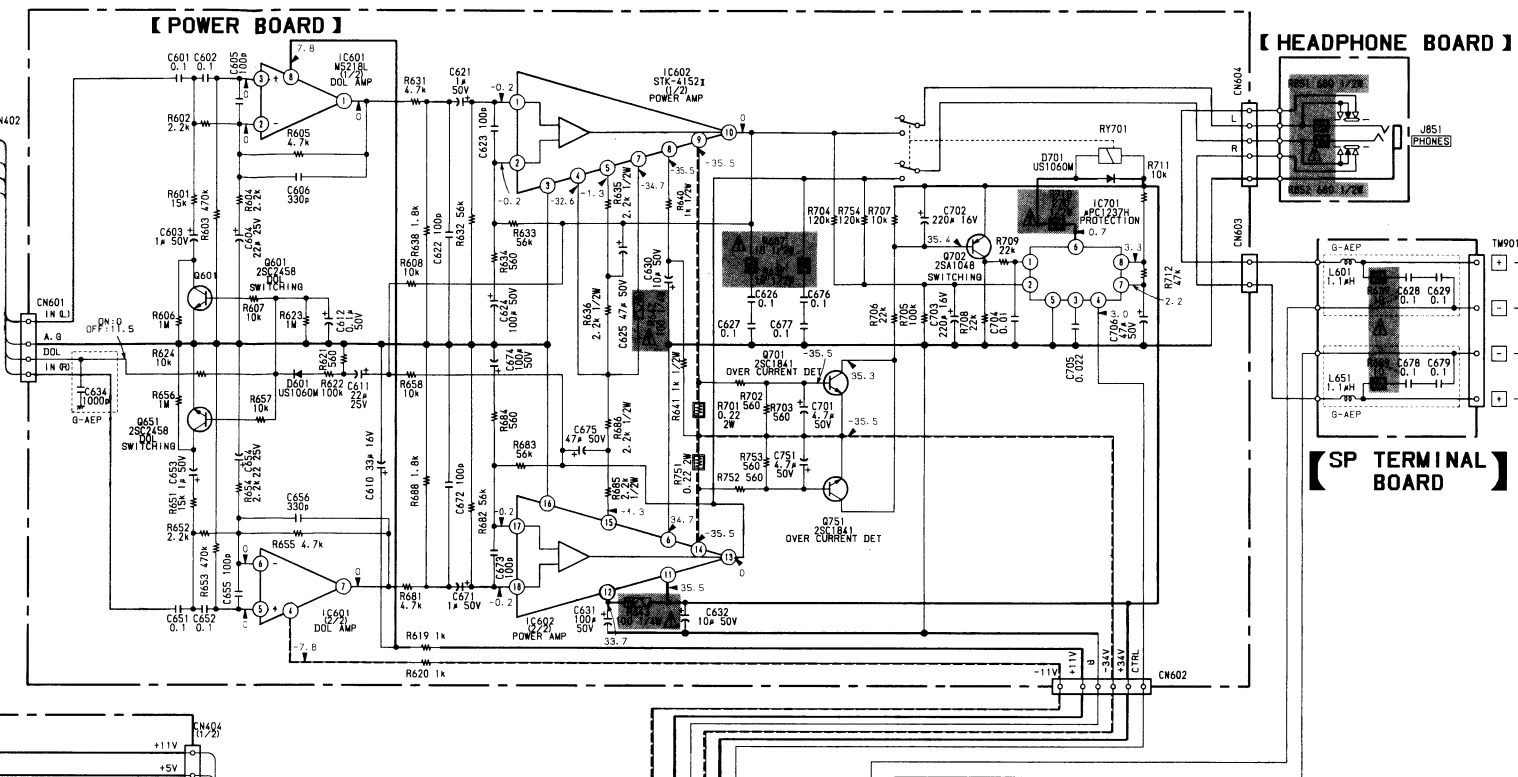
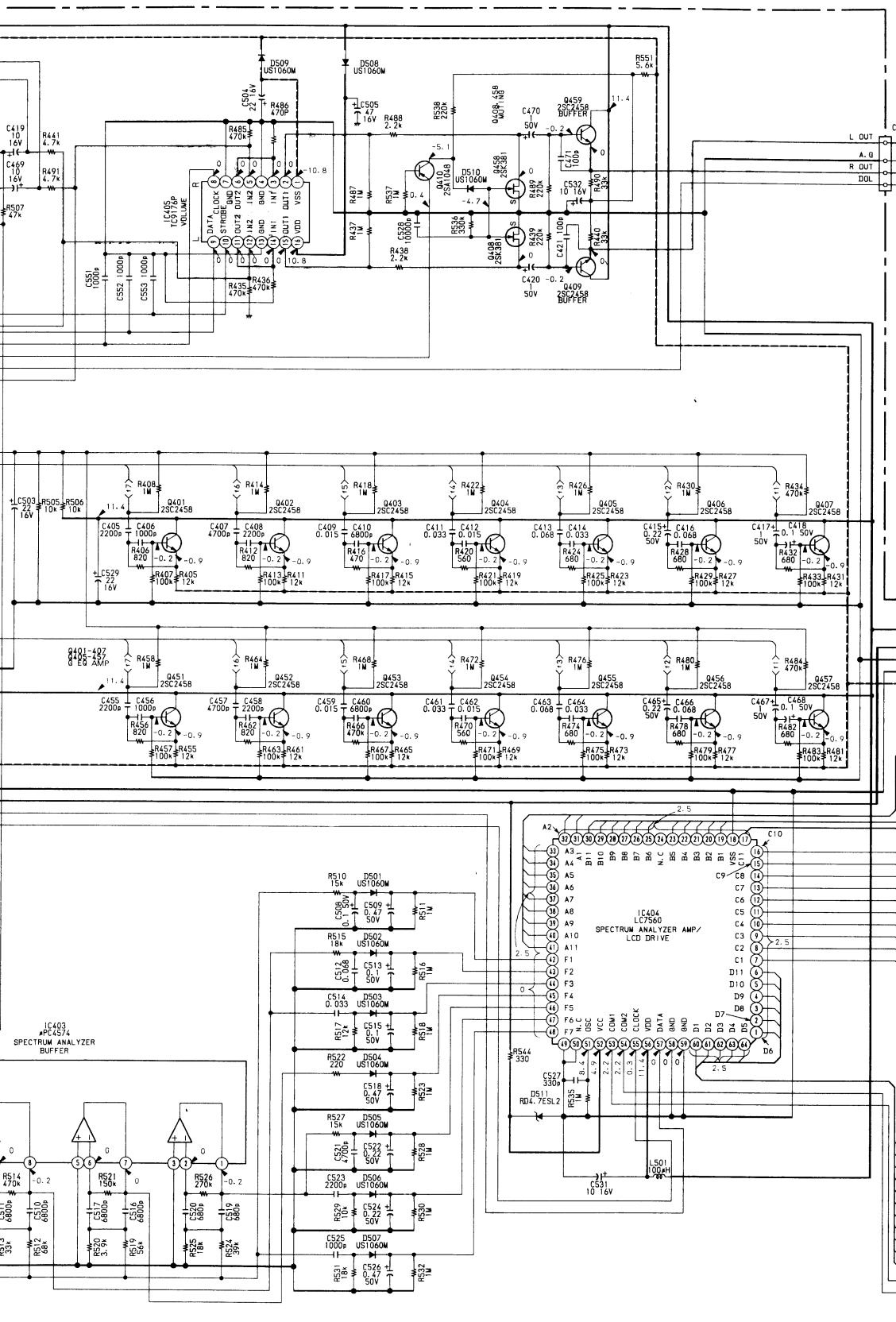


1-2. SCHEMATIC DIAGRAM

- See page TA-4 for note.
- See page TA-2 for IC block diagram.

A
B
C
D
E
F
G
H
I
J





SECTION 2

EXPLODED VIEWS AND PARTS LIST

NOTE:

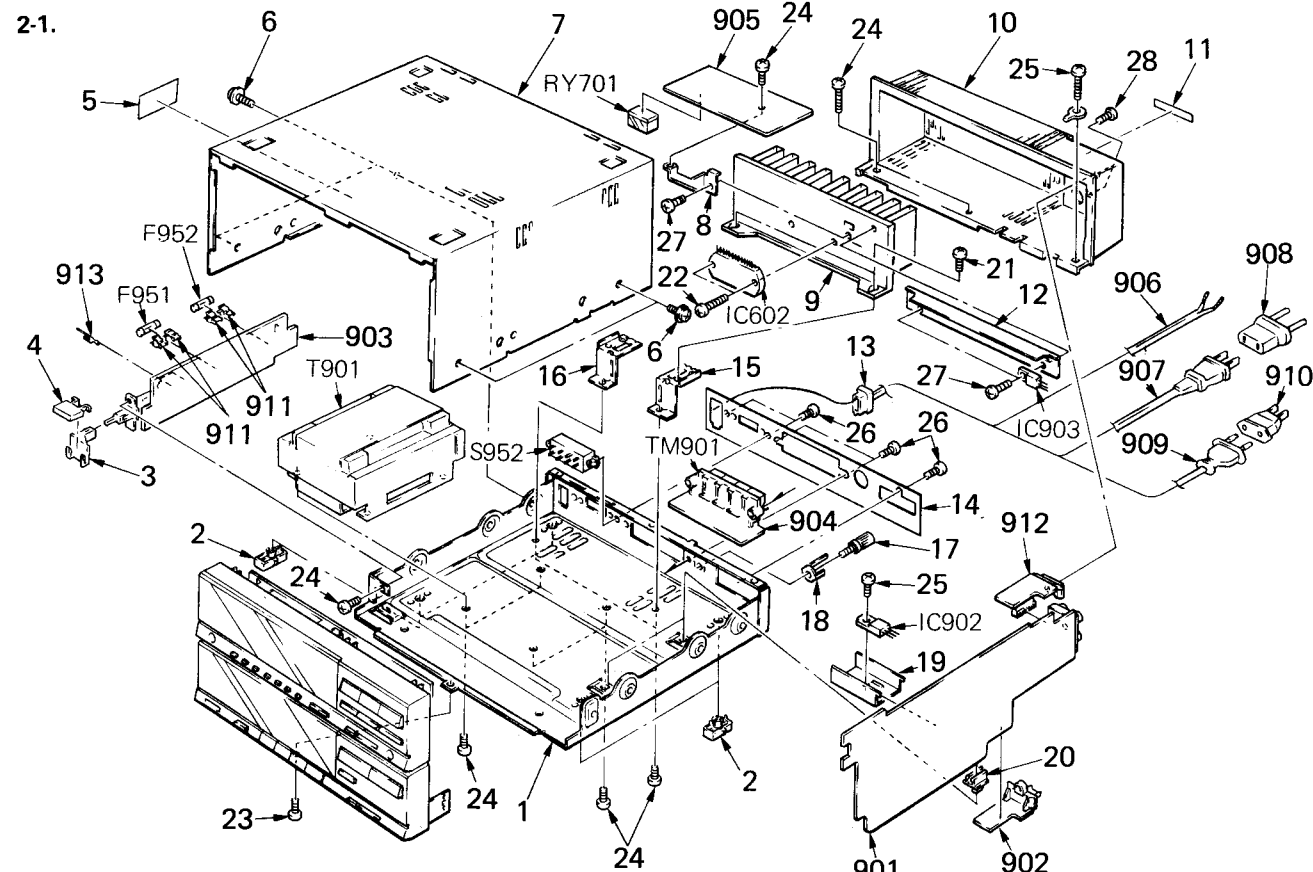
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE
 ↑
 (WHITE)

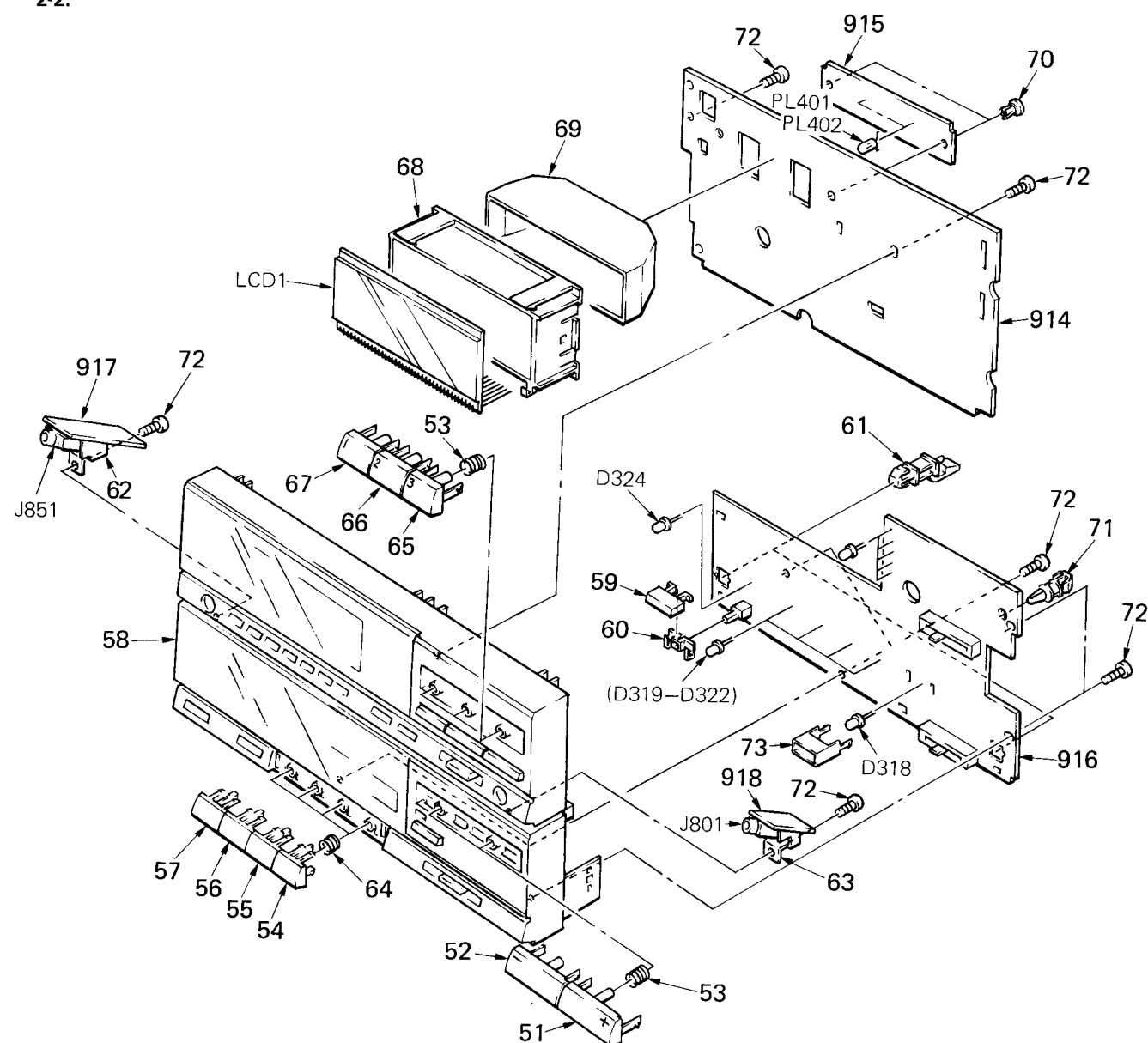
[illegible]

The components identified by shading and mark  are critical for safety. Replace only with part number specified.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	*4-920-117-01	CHASSIS		20	*3-642-310-00	HOLDER, CIRCUIT BOARD	
2	X-4902-937-1	FOOT ASSY, RUBBER		21	3-703-685-01	SCREW (+BV 3X8)	
3	*4-914-389-01	JOINT, POWER		22	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
4	*4-914-396-01	BUTTON (POWER)		23	7-682-546-04	SCREW +BVTT 3X5 (S)	
5	*4-914-382-01	(E,Saudi Arabia)...LABEL, MODEL NUMBER		24	7-682-147-01	SCREW +BVTT 3X6 (S)	
	*4-914-383-01	(AEP).....LABEL, MODEL NUMBER (AE1)		25	7-682-148-01	SCREW +BVTT 3X8 (S)	
	*4-914-383-11	(AEP).....LABEL, MODEL NUMBER (AE2)		26	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S	
	*4-914-384-01	(UK).....LABEL, MODEL NUMBER		27	7-685-647-71	SCREW +BVTP 3X10 TYPE2 IT-3	
	*4-914-385-01	(G-AEP).....LABEL, MODEL NUMBER		28	7-685-647-11	SCREW +BVTP 3X10 TYPE2 N-S	
6	7-682-147-09	SCREW, M3 CASE		901	*A-4394-426-A	(AEP,UK).....MOUNTED PCB, POWER	
7	4-920-118-01	CASE			*A-4394-433-A	(G-AEP).....MOUNTED PCB, POWER	
8	*4-910-064-01	BACKET (H), PC BOARD			*A-4394-425-A	(E,Saudi Arabia)...MOUNTED PCB, POWER	
9	*4-920-108-01	HEAT SINK		902	*1-622-161-11	PC BOARD, TC CONNECTOR	
10	*4-920-116-01	PLATE, JACK		904	*1-622-159-11	PC BOARD, SP TERMINAL	
11	*4-910-067-71	LABEL (B), CONNECTOR		905	*A-4388-638-A	(AEP,UK,E,Saudi Arabia)	
12	*4-920-112-01	PLATE, BLOCK				...MOUNTED PCB, POWER IC	
13	*3-703-244-00	(AEP,G-AEP,UK,Saudi Arabia)			*A-4388-667-A	(G-AEP).....MOUNTED PCB, POWER IC	
	3-703-571-00	(E).....BUSHING (2104), CORD					
14	*4-914-379-01	(E,Saudi Arabia)...COVER, REAR					
	*4-914-379-11	(AEP,UK).....COVER, REAR					
	*4-914-379-21	(G-AEP).....COVER, REAR					
15	*4-914-394-01	BRACKET (RIGHT), HEAT SINK					
16	*4-914-393-01	BRACKET (LEFT), HEAT SINK					
17	3-706-165-00	(G-AEP)...SCREW					
18	3-701-993-00	(G-AEP)...SPACER, TERMINAL					
19	*4-880-403-00	HEAT SINK					

2-2.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	4-920-105-01	BUTTON (VOLUME/+)		68	*X-4910-090-1	ILLUMINATOR ASSY	
52	4-920-105-11	BUTTON (VOLUME/-)		69	*4-920-101-01	HOUSE, LAMP	
53	3-564-333-21	SPRING, COMPRESSION		70	4-812-134-00	RIVET NYLON, 3.5	
54	4-914-387-31	BUTTON (FUNCTION) (PHONO)		71	4-314-527-01	SUPPORT, PC	
55	4-914-387-21	BUTTON (FUNCTION) (TUNER)		72	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S	
56	4-914-387-11	BUTTON (FUNCTION) (CD)		73	*4-904-509-01	HOLDER (B), LED	
57	4-914-387-01	BUTTON (FUNCTION) (TAPE)		903	*1-622-156-11	PC BOARD, AC	
58	X-4910-098-1	PANEL ASSY					
59	4-914-388-00	(E,Saudi Arabia)...BUTTON (DOL)(SAT)		914	*A-4375-303-A	(AEP,UK ,E,Saudi Arabia)	
	4-914-388-11	(AEP,G-AEP,UK).....BUTTON (DOL)(DBFB)				...MOUNTED PCB, GEQ	
60	*4-914-390-01	JOINT, DOL			*A-4375-331-A	(G-AEP).....MOUNTED PCB, GEQ	
61	*4-839-304-00	HOLDER, CIRCUIT BOARD		915	*1-622-155-11	PC BOARD, LAMP	
62	*4-914-392-01	BRACKET, HP		916	*A-4375-302-A	MOUNTED PCB, CONTROL	
63	*4-914-391-01	BRACKET, MIC		917	*1-622-154-11	PC BOARD, HEADPHONE	
				918	*1-622-153-11	PC BOARD, MICROPHONE	
64	3-538-940-01	SPRING, COMPRESSION		J801	1-507-974-11	JACK	
65	4-920-106-21	BUTTON (GE PRESET/3)		J851	1-563-951-11	JACK	
66	4-920-106-11	BUTTON (GE PRESET/2)		LCD1	1-807-813-11	DISPLAY PANEL, LIQUID CRYSTAL	
67	4-920-106-01	BUTTON (GE PRESET/1)		PL401	1-518-527-51	LAMP, PILOT	
				PL402	1-518-527-51	LAMP, PILOT	

NOTE :

- Items marked * if they are sold for service. Some items are not included when ordered.

- If there are to be set such as a typical circuit capacitors and circuits may be

Ref.No.	Part No
901	*A-4394
	*A-4394
	*A-4394
902	*1-622-
903	*1-622-
904	*1-622-
905	*A-4388
	*A-4388
911	1-533-
912	*1-622-
913	*1-535-
914	*A-4375
	*A-4375
915	*1-622-
916	*A-4375
917	*1-622-
918	*1-622-
BP901	*1-508-
BP902	*1-508-
BP951	*1-560-
BP952	*1-560-
BP953	*1-560-
C101	1-162-
C102	1-162-
C103	1-162-
C104	1-124-
C105	1-130-
C106	1-130-
C107	1-124-
C108	1-124-
C109	1-162-
C110	1-162-
C151	1-162-
C152	1-162-
C153	1-162-
C154	1-124-
C155	1-130-
C156	1-130-
C157	1-124-
C158	1-124-
C159	1-162-
C160	1-162-
C201	1-124-

C159 1-162-
C160 1-162-
C201 1-124-

SECTION 3

ELECTRICAL PARTS LIST

NOTE:

Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

All resistors are in ohms.

F: nonflammable

COILS

MMH: mH, UH: μH

SEMICONDUCTORS

In each case, U: μ, for example:

UA....: μA..., UPA....: μPA..., UPC....: μPC,

UPD....: μPD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	*A-4394-426-A (AEP,UK).....	MOUNTED PCB, POWER
	*A-4394-433-A (G-AEP).....	MOUNTED PCB, POWER
	*A-4394-425-A (E,Saudi Arabia)...	MOUNTED PCB, POWER
902	*1-622-161-11	PC BOARD, TC CONNECTOR
903	*1-622-156-11	PC BOARD, AC
904	*1-622-159-11	PC BOARD, SP TERMINAL
905	*A-4388-638-A (AEP,UK,E,Saudi Arabia)	...MOUNTED PCB, POWER IC
	*A-4388-667-A (G-AEP).....	MOUNTED PCB, POWER IC
911	1-533-162-00	HOLDER, FUSE
912	*1-622-162-11	PC BOARD, ST CONNECTOR
913	*1-535-476-11 (AEP,G-AEP,UK)...	TERMINAL
914	*A-4375-303-A (AEP,UK,E,Saudi Arabia)...	MOUNTED PCB, GEQ
	*A-4375-331-A (G-AEP).....	MOUNTED PCB, GEQ
915	*1-622-155-11	PC BOARD, LAMP
916	*A-4375-302-A	MOUNTED PCB, CONTROL
917	*1-622-154-11	PC BOARD, HEADPHONE
918	*1-622-153-11	PC BOARD, MICROPHONE
BP901	*1-508-830-12	H TYPE BASE POST
BP902	*1-508-830-12	H TYPE BASE POST
BP951	*1-560-595-21 (E,Saudi Arabia)...	TERMINAL (WITH BASE)
BP952	*1-560-595-21	TERMINAL (WITH BASE)
BP953	*1-560-595-21 (E,Saudi Arabia)...	TERMINAL (WITH BASE)
C101	1-162-282-31	CERAMIC 100PF 10% 50V
C102	1-162-288-31 (G-AEP)...	CERAMIC 330PF 10% 50V
C103	1-162-282-31	CERAMIC 100PF 10% 50V
C104	1-124-925-11	ELECT 2.2MF 20% 50V
C105	1-130-473-00	MYLAR 0.0015MF 5% 50V
C106	1-130-480-00	MYLAR 0.0056MF 5% 50V
C107	1-124-925-11	ELECT 2.2MF 20% 50V
C108	1-124-963-11	ELECT 33MF 20% 16V
C109	1-162-282-31	CERAMIC 100PF 10% 50V
C110	1-162-282-31	CERAMIC 100PF 10% 50V
C151	1-162-282-31	CERAMIC 100PF 10% 50V
C152	1-162-288-31 (G-AEP)...	CERAMIC 330PF 10% 50V
C153	1-162-282-31	CERAMIC 100PF 10% 50V
C154	1-124-925-11	ELECT 2.2MF 20% 50V
C155	1-130-473-00	MYLAR 0.0015MF 5% 50V
C156	1-130-480-00	MYLAR 0.0056MF 5% 50V
C157	1-124-925-11	ELECT 2.2MF 20% 50V
C158	1-124-963-11	ELECT 33MF 20% 16V
C159	1-162-282-31	CERAMIC 100PF 10% 50V
C160	1-162-282-31	CERAMIC 100PF 10% 50V
C201	1-124-925-11	ELECT 2.2MF 20% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C221	1-124-925-11	ELECT 2.2MF 20% 50V
C222	1-124-791-11	ELECT 1MF 20% 50V
C223	1-123-875-91	ELECT 10MF 20% 50V
C224	1-124-791-11	ELECT 1MF 20% 50V
C225	1-161-379-00	CERAMIC 0.01MF 30% 16V
C226	1-124-442-00	ELECT 330MF 20% 6.3V
C251	1-124-925-11	ELECT 2.2MF 20% 50V
C301	1-162-294-31	CERAMIC 0.001MF 10% 50V
C302	1-162-294-31	CERAMIC 0.001MF 10% 50V
C303	1-162-294-31	CERAMIC 0.001MF 10% 50V
C304	1-162-294-31	CERAMIC 0.001MF 10% 50V
C305	1-123-611-00	ELECT 1MF 20% 50V
C306	1-162-282-31	CERAMIC 100PF 10% 50V
C307	1-162-282-31	CERAMIC 100PF 10% 50V
C308	1-162-294-31	CERAMIC 0.001MF 10% 50V
C309	1-162-294-31	CERAMIC 0.001MF 10% 50V
C310	1-123-611-00	ELECT 1MF 20% 50V
C311	1-161-379-00	CERAMIC 0.01MF 30% 16V
C312	1-123-611-00	ELECT 1MF 20% 50V
C313	1-161-494-00	CERAMIC 0.022MF 25V
C314	1-123-617-00	ELECT 10MF 20% 16V
C315	1-123-617-00	ELECT 10MF 20% 16V
C316	1-162-282-31	CERAMIC 100PF 10% 50V
C317	1-162-282-31	CERAMIC 100PF 10% 50V
C318	1-162-215-31	CERAMIC 47PF 5% 50V
C319	1-162-215-31	CERAMIC 47PF 5% 50V
C322	1-123-617-00	ELECT 10MF 20% 16V
C327	1-123-617-00	ELECT 10MF 20% 16V
C328	1-161-379-00	CERAMIC 0.01MF 30% 16V
C329	1-161-379-00	CERAMIC 0.01MF 30% 16V
C330	1-161-379-00	CERAMIC 0.01MF 30% 16V
C331	1-123-617-00	ELECT 10MF 20% 16V
C332	1-162-284-31	CERAMIC 150PF 10% 50V
C333	1-162-284-31	CERAMIC 150PF 10% 50V
C334	1-123-622-00	ELECT 22MF 20% 16V
C335	1-123-617-00	ELECT 10MF 20% 16V
C336	1-123-617-00	ELECT 10MF 20% 16V
C337	1-123-611-00	ELECT 1MF 20% 50V
C338	1-123-611-00	ELECT 1MF 20% 50V
C339	1-124-463-00	ELECT 0.1MF 20% 50V
C340	1-162-294-31	CERAMIC 0.001MF 10% 50V
C345	1-161-379-00	CERAMIC 0.01MF 30% 16V
C401	1-162-282-31	CERAMIC 100PF 10% 50V
C402	1-123-611-00	ELECT 1MF 20% 50V
C403	1-123-611-00	ELECT 1MF 20% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C405	1-161-375-00	CERAMIC 0.0022MF 30% 16V
C406	1-162-294-31	CERAMIC 0.001MF 10% 50V
C407	1-161-377-00	CERAMIC 0.0047MF 30% 16V
C408	1-161-375-00	CERAMIC 0.0022MF 30% 16V
C409	1-136-155-91	FILM 0.015MF 5% 50V
C410	1-161-329-00	CERAMIC 0.0068MF 30% 16V
C411	1-136-159-00	FILM 0.033MF 5% 50V
C412	1-136-155-91	FILM 0.015MF 5% 50V
C413	1-136-163-00	FILM 0.068MF 5% 50V
C414	1-136-159-00	FILM 0.033MF 5% 50V
C415	1-124-464-11	ELECT 0.22MF 20% 50V
C416	1-136-163-00	FILM 0.068MF 5% 50V
C417	1-123-611-00	ELECT 1MF 20% 50V
C418	1-124-463-00	ELECT 0.1MF 20% 50V
C419	1-123-617-00	ELECT 10MF 20% 16V
C420	1-123-611-00	ELECT 1MF 20% 50V
C421	1-162-282-31	CERAMIC 100PF 10% 50V
C449	1-162-596-11	CERAMIC 0.0022MF
C451	1-162-282-31	CERAMIC 100PF 10% 50V
C452	1-123-611-00	ELECT 1MF 20% 50V
C453	1-123-611-00	ELECT 1MF 20% 50V
C455	1-161-375-00	CERAMIC 0.0022MF 30% 16V
C456	1-162-294-31	CERAMIC 0.001MF 10% 50V
C457	1-161-377-00	CERAMIC 0.0047MF 30% 16V
C458	1-161-375-00	CERAMIC 0.0022MF 30% 16V
C459	1-136-155-91	FILM 0.015MF 5% 50V
C460	1-161-329-00	CERAMIC 0.0068MF 30% 16V
C461	1-136-159-00	FILM 0.033MF 5% 50V
C462	1-136-155-91	FILM 0.015MF 5% 50V
C463	1-136-163-00	FILM 0.068MF 5% 50V
C464	1-136-159-00	FILM 0.033MF 5% 50V
C465	1-124-464-11	ELECT 0.22MF 20% 50V
C466	1-136-163-00	FILM 0.068MF 5% 50V
C467	1-123-611-00	ELECT 1MF 20% 50V
C468	1-124-463-00	ELECT 0.1MF 20% 50V
C469	1-123-617-00	ELECT 10MF 20% 16V
C470	1-123-611-00	ELECT 1MF 20% 50V
C471	1-162-282-31	CERAMIC 100PF 10% 50V
C499	1-162-596-11	CERAMIC 0.0022MF
C501	1-123-617-00	ELECT 10MF 20% 16V
C502	1-123-617-00	ELECT 10MF 20% 16V
C503	1-123-622-00	ELECT 22MF 20% 16V
C504	1-123-622-00	ELECT 22MF 20% 16V
C505	1-124-236-00	ELECT 47MF 20% 16V
C506	1-123-617-00	ELECT 10MF 20% 16V
C507	1-123-617-00	ELECT 10MF 20% 16V
C508	1-124-463-00	ELECT 0.1MF 20% 50V
C509	1-124-465-00	ELECT 0.47MF 20% 50V
C510	1-161-329-00	CERAMIC 0.0068MF 30% 16V
C511	1-161-329-00	CERAMIC 0.0068MF 30% 16V
C512	1-136-163-00	FILM 0.068MF 5% 50V
C513	1-124-463-00	ELECT 0.1MF 20% 50V
C514	1-136-159-00	FILM 0.033MF 5% 50V
C515	1-124-463-00	ELECT 0.1MF 20% 50V
C516	1-161-329-00	CERAMIC 0.0068MF 30% 16V
C517	1-161-329-00	CERAMIC 0.0068MF 30% 16V
C518	1-124-465-00	ELECT 0.47MF 20% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C519	1-162-292-31	CERAMIC 680PF 10% 50V
C520	1-162-292-31	CERAMIC 680PF 10% 50V
C521	1-161-377-00	CERAMIC 0.0047MF 30% 16V
C522	1-124-464-11	ELECT 0.22MF 20% 50V
C523	1-161-375-00	CERAMIC 0.0022MF 30% 16V
C524	1-124-464-11	ELECT 0.22MF 20% 50V
C525	1-162-294-31	CERAMIC 0.001MF 10% 50V
C526	1-124-465-00	ELECT 0.47MF 20% 50V
C527	1-162-288-31	CERAMIC 330PF 10% 50V
C528	1-161-379-00	CERAMIC 0.01MF 30% 16V
C529	1-123-622-00	ELECT 22MF 20% 16V
C530	1-123-617-00	ELECT 10MF 20% 16V
C531	1-123-617-00	ELECT 10MF 20% 16V
C532	1-123-617-00	ELECT 10MF 20% 16V
C551	1-162-294-31	CERAMIC 0.001MF 10% 50V
C552	1-162-294-31	CERAMIC 0.001MF 10% 50V
C553	1-162-294-31	CERAMIC 0.001MF 10% 50V
C601	1-136-165-00	FILM 0.1MF 5% 50V
C602	1-136-165-00	FILM 0.1MF 5% 50V
C603	1-124-791-11	ELECT 1MF 20% 50V
C604	1-123-617-00	ELECT 10MF 20% 16V
C605	1-162-282-31	CERAMIC 100PF 10% 50V
C606	1-162-288-31	CERAMIC 330PF 10% 50V
C610	1-124-963-11	ELECT 33MF 20% 16V
C611	1-124-598-11	ELECT 22MF 20% 25V
C612	1-124-463-00	ELECT 0.1MF 20% 50V
C621	1-124-791-11	ELECT 1MF 20% 50V
C622	1-162-282-31	CERAMIC 100PF 10% 50V
C623	1-162-282-31	CERAMIC 100PF 10% 50V
C624	1-124-122-11	ELECT 100MF 20% 50V
C625	1-124-910-11	ELECT 47MF 20% 50V
C626	1-136-165-00	FILM 0.1MF 5% 50V
C627	1-136-165-00	FILM 0.1MF 5% 50V
C628	1-136-165-00 (G-AEP)...	FILM 0.1MF 5% 50V
C629	1-136-165-00 (G-AEP)...	FILM 0.1MF 5% 50V
C630	1-123-875-91	ELECT 10MF 20% 50V
C631	1-124-122-11	ELECT 100MF 20% 50V
C632	1-123-875-91	ELECT 10MF 20% 50V
C634	1-161-323-11 (G-AEP)...	CERAMIC 1000PF 10% 50V
C651	1-136-165-00	FILM 0.1MF 5% 50V
C652	1-136-165-00	FILM 0.1MF 5% 50V
C653	1-124-791-11	ELECT 1MF 20% 50V
C654	1-123-617-00	ELECT 10MF 20% 16V
C655	1-162-282-31	CERAMIC 100PF 10% 50V
C656	1-162-288-31	CERAMIC 330PF 10% 50V
C671	1-124-791-11	ELECT 1MF 20% 50V
C672	1-162-282-31	CERAMIC 100PF 10% 50V
C673	1-162-282-31	CERAMIC 100PF 10% 50V
C674	1-124-122-11	ELECT 100MF 20% 50V
C675	1-124-910-11	ELECT 47MF 20% 50V
C676	1-136-165-00	FILM 0.1MF 5% 50V
C677	1-136-165-00	FILM 0.1MF 5% 50V
C678	1-136-165-00 (G-AEP)...	FILM 0.1MF 5% 50V
C679	1-136-165-00 (G-AEP)...	FILM 0.1MF 5% 50V
C701	1-124-927-11	ELECT 4.7MF 20% 50V
C702	1-123-321-00	ELECT 220MF 20% 16V
C703	1-123-321-00	ELECT 220MF 20% 16V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C704	1-161-379-00	CERAMIC	0.01MF	30%	16V
C705	1-161-494-00	CERAMIC	0.022MF		25V
C706	1-124-910-11	ELECT	47MF	20%	50V
C751	1-124-927-11	ELECT	4.7MF	20%	50V
C901	1-124-362-00	(G-AEP,AEP,UK)...ELECT	4700MF	20%	42V
C901	1-126-085-11	(E,Saudi Arabia) ...ELECT	3300MF	20%	50V
C902	1-124-362-00	(G-AEP,AEP,UK)...ELECT	4700MF	20%	42V
C902	1-126-085-11	(E,Saudi Arabia) ...ELECT	3300MF	20%	50V
C903	1-124-927-11	ELECT	4.7MF	20%	50V
C904	1-136-165-00	FILM	0.1MF	5%	50V
C905	1-136-165-00	FILM	0.1MF	5%	50V
C906	1-123-875-91	ELECT	10MF	20%	50V
C907	1-123-875-91	ELECT	10MF	20%	50V
C908	1-124-563-11	ELECT	2200MF	20%	25V
C909	1-124-563-11	ELECT	2200MF	20%	25V
C910	1-136-153-00	FILM	0.01MF	5%	50V
C911	1-136-153-00	FILM	0.01MF	5%	50V
C912	1-101-006-00	CERAMIC	0.047MF		50V
C913	1-101-006-00	CERAMIC	0.047MF		50V
CN101	1-562-479-12	SOCKET, CONNECTOR 10P			
CN102	1-564-610-21	CONNECTOR, BOARD TO BOARD			
CN103	1-562-479-12	SOCKET, CONNECTOR 10P			
CN104	1-564-610-21	CONNECTOR, BOARD TO BOARD			
CN201	*1-564-499-11	PIN, CONNECTOR 6P			
CN202	*1-564-501-11	PIN, CONNECTOR 8P			
CN203	*1-564-500-11	PIN, CONNECTOR 7P			
CN401	*1-564-501-11	PIN, CONNECTOR 8P			
CN403	*1-564-501-11	PIN, CONNECTOR 8P			
CN405	*1-564-495-11	PIN, CONNECTOR 2P			
CN601	*1-564-497-11	PIN, CONNECTOR 4P			
CN602	*1-564-521-11	PLUG, CONNECTOR 6P			
CN603	*1-564-517-11	PLUG, CONNECTOR 2P			
CN604	*1-564-520-11	PLUG, CONNECTOR 5P			
CN801	*1-564-495-11	PIN, CONNECTOR 2P			
CN901	*1-564-517-21	PLUG, CONNECTOR 2P			
D201	8-719-000-26	DIODE US1060M			
D202	8-719-000-26	DIODE US1060M			
D301	8-719-000-26	DIODE US1060M			
D303	8-719-000-26	DIODE US1060M			
D304	8-719-000-26	DIODE US1060M			
D305	8-719-000-26	DIODE US1060M			
D306	8-719-000-26	DIODE US1060M			
D307	8-719-000-26	DIODE US1060M			
D308	8-719-000-26	DIODE US1060M			
D309	8-719-000-26	DIODE US1060M			
D310	8-719-000-26	DIODE US1060M			
D311	8-719-000-26	DIODE US1060M			
D313	8-719-301-60	DIODE SEL2910A-C			
D314	8-719-301-60	DIODE SEL2910A-C			
D315	8-719-301-60	DIODE SEL2910A-C			
D316	8-719-301-60	DIODE SEL2910A-C			
D317	8-719-301-60	DIODE SEL2910A-C			
D318	8-719-301-60	DIODE SEL2910A-C			
D319	8-719-301-48	DIODE SEL2413E-D			
D320	8-719-301-48	DIODE SEL2413E-D			
D321	8-719-301-48	DIODE SEL2413E-D			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
D322	8-719-301-48	DIODE SEL2413E-D			
D323	8-719-933-38	DIODE HZS683L			
D324	8-719-302-87	DIODE SEL2913K-C			
D325	8-719-000-26	DIODE US1060M			
D501	8-719-000-26	DIODE US1060M			
D502	8-719-000-26	DIODE US1060M			
D503	8-719-000-26	DIODE US1060M			
D504	8-719-000-26	DIODE US1060M			
D505	8-719-000-26	DIODE US1060M			
D506	8-719-000-26	DIODE US1060M			
D507	8-719-000-26	DIODE US1060M			
D508	8-719-000-26	DIODE US1060M			
D509	8-719-000-26	DIODE US1060M			
D510	8-719-000-26	DIODE US1060M			
D511	8-719-109-81	DIODE RD4.7ES-B2			
D601	8-719-000-26	DIODE US1060M			
D701	8-719-000-26	DIODE US1060M			
D901	8-719-302-38	DIODE RBV-602-01			
D902	8-719-000-26	DIODE US1060M			
D903	8-719-200-77	DIODE 10E2N			
D904	8-719-200-77	DIODE 10E2N			
D905	8-719-200-77	DIODE 10E2N			
D906	8-719-200-77	DIODE 10E2N			
D907	8-719-000-26	DIODE US1060M			
D908	8-719-000-26	DIODE US1060M			
D909	8-719-000-26	DIODE US1060M			
D910	8-719-000-26	DIODE US1060M			
DP101	*1-562-251-00	SOCKET, CONNECTOR 6P			
IC101	8-759-600-02	IC M5218L			
IC102	8-759-800-33	IC LC7815H			
IC301	8-759-804-48	IC LC7060AM			
IC302	8-759-600-02	IC M5218L			
IC303	8-759-602-60	IC M50765-440SP			
IC401	8-759-600-02	IC M5218L			
IC402	8-759-804-49	IC LC7522			
IC403	8-759-113-18	IC UPC4574C			
IC404	8-759-804-50	IC LC7560			
IC405	8-759-204-30	IC TC9176P			
IC601	8-759-600-02	IC M5218L			
IC602	8-749-941-52	IC STK415211			
IC701	8-759-111-68	IC UPC1237HA			
IC901	8-759-604-XX	IC M5F78M06			
IC902	8-759-604-32	IC M5F7810			
IC903	8-759-604-50	IC M5F7910			
ICP101	1-532-841-21	LINK, IC			
ICP901	1-532-783-21	(E,Saudi Arabia)...FUSE, MICRO(SECONDARY)			
ICP901	1-532-846-21	(G-AEP,AEP,UK)...LINK, IC			
ICP902	1-532-783-21	(E,Saudi Arabia)...FUSE, MICRO(SECONDARY)			
ICP902	1-532-846-21	(G-AEP,AEP,UK)...LINK, IC			
J101	1-507-908-11	JACK, PIN 4P			
J801	1-507-974-11	JACK			
J851	1-563-951-11	JACK			
L501	1-410-564-41	MICRO INDUCTOR 100UH			
L601	1-410-397-21	(G-AEP)...FERRITE BEAD INDUCTOR 1.1UH			
L651	1-410-397-21	(G-AEP)...FERRITE BEAD INDUCTOR 1.1UH			

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
LCD1	1-807-813-11	DISPLAY PANEL, LIQUID CRYSTAL			
PL401	1-518-527-51	LAMP, PILOT			
PL402	1-518-527-51	LAMP, PILOT			
Q301	8-729-117-54	TRANSISTOR 2SA1175			
Q302	8-729-117-54	TRANSISTOR 2SA1175			
Q303	8-729-117-54	TRANSISTOR 2SA1175			
Q304	8-729-117-54	TRANSISTOR 2SA1175			
Q305	8-729-117-54	TRANSISTOR 2SA1175			
Q306	8-729-117-54	TRANSISTOR 2SA1175			
Q307	8-729-600-27	TRANSISTOR 2SC634SP			
Q308	8-729-600-27	TRANSISTOR 2SC634SP			
Q309	8-729-600-27	TRANSISTOR 2SC634SP			
Q401	8-729-600-27	TRANSISTOR 2SC634SP			
Q402	8-729-600-27	TRANSISTOR 2SC634SP			
Q403	8-729-600-27	TRANSISTOR 2SC634SP			
Q404	8-729-600-27	TRANSISTOR 2SC634SP			
Q405	8-729-600-27	TRANSISTOR 2SC634SP			
Q406	8-729-600-27	TRANSISTOR 2SC634SP			
Q407	8-729-600-27	TRANSISTOR 2SC634SP			
Q408	8-729-600-08	TRANSISTOR 2SK381-E			
Q409	8-729-600-27	TRANSISTOR 2SC634SP			
Q410	8-729-611-53	TRANSISTOR 2SA1115-F			
Q451	8-729-600-27	TRANSISTOR 2SC634SP			
Q452	8-729-600-27	TRANSISTOR 2SC634SP			
Q453	8-729-600-27	TRANSISTOR 2SC634SP			
Q454	8-729-600-27	TRANSISTOR 2SC634SP			
Q455	8-729-600-27	TRANSISTOR 2SC634SP			
Q456	8-729-600-27	TRANSISTOR 2SC634SP			
Q457	8-729-600-27	TRANSISTOR 2SC634SP			
Q458	8-729-600-08	TRANSISTOR 2SK381-E			
Q459	8-729-600-27	TRANSISTOR 2SC634SP			
Q601	8-729-600-27	TRANSISTOR 2SC634SP			
Q651	8-729-600-27	TRANSISTOR 2SC634SP			
Q701	8-729-108-05	TRANSISTOR 2SC1841-PA			
Q702	8-729-117-54	TRANSISTOR 2SA1175			
Q751	8-729-108-05	TRANSISTOR 2SC1841-PA			
R101	1-249-417-11	CARBON 1K 5%	1/6W		
R102	1-249-417-11	CARBON 1K 5%	1/6W		
R103	1-249-438-11	CARBON 56K 5%	1/6W		
R104	1-249-418-11	CARBON 1.2K 5%	1/6W		
R105	1-249-437-11	CARBON 47K 5%	1/6W		
R106	1-215-487-00	CARBON 560K 5%	1/6W		
R107	1-249-421-11	CARBON 2.2K 5%	1/6W		
R108	1-249-411-11	CARBON 330 5%	1/6W		
R109	1-249-433-11	CARBON 22K 5%	1/6W		
R151	1-249-417-11	CARBON 1K 5%	1/6W		
R152	1-249-417-11	CARBON 1K 5%	1/6W		
R153	1-249-438-11	CARBON 56K 5%	1/6W		
R154	1-249-418-11	CARBON 1.2K 5%	1/6W		
R155	1-249-437-11	CARBON 47K 5%	1/6W		
R156	1-215-487-00	CARBON 560K 5%	1/6W		
R157	1-249-421-11	CARBON 2.2K 5%	1/6W		
R158	1-249-411-11	CARBON 330 5%	1/6W		
R159	1-249-433-11	CARBON 22K 5%	1/6W		
R201	1-215-481-00	CARBON 330K 5%	1/6W		
R202	1-215-481-00	CARBON 330K 5%	1/6W		
R203	1-249-429-11	CARBON 10K 5%	1/6W		

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R204	1-215-481-00	CARBON	330K	5%	1/6W
R206	1-249-417-11	CARBON	1K	5%	1/6W
R207	1-249-428-11	CARBON	8.2K	5%	1/6W
R208	1-249-417-11	CARBON	1K	5%	1/6W
R209	1-249-430-11	CARBON	12K	5%	1/6W
R210	1-249-429-11	CARBON	10K	5%	1/6W
R211	1-249-429-11	CARBON	10K	5%	1/6W
R212	1-249-433-11	CARBON	22K	5%	1/6W
R221	1-249-441-11	CARBON	100K	5%	1/6W
R222	1-249-417-11	CARBON	1K	5%	1/6W
R223	1-215-485-00	CARBON	470K	5%	1/6W
R224	1-215-485-00	CARBON	470K	5%	1/6W
R225	1-215-481-00	CARBON	330K	5%	1/6W
R226	1-249-421-11	CARBON	2.2K	5%	1/6W
R251	1-215-481-00	CARBON	330K	5%	1/6W
R252	1-215-481-00	CARBON	330K	5%	1/6W
R253	1-249-429-11	CARBON	10K	5%	1/6W
R254	1-215-481-00	CARBON	330K	5%	1/6W
R256	1-249-417-11	CARBON	1K	5%	1/6W
R257	1-249-428-11	CARBON	8.2K	5%	1/6W
R258	1-249-417-11	CARBON	1K	5%	1/6W
R259	1-249-430-11	CARBON	12K	5%	1/6W
R301	1-249-429-11	CARBON	10K	5%	1/6W
R302	1-249-429-11	CARBON	10K	5%	1/6W
R303	1-249-429-11	CARBON	10K	5%	1/6W
R304	1-249-429-11	CARBON	10K	5%	1/6W
R305	1-249-441-11	CARBON	100K	5%	1/6W
R306	1-215-493-00	CARBON	1M	5%	1/6W
R307	1-249-425-11	CARBON	4.7K	5%	1/6W
R308	1-249-429-11	CARBON	10K	5%	1/6W
R309	1-249-429-11	CARBON	10K	5%	1/6W
R315	1-249-417-11	CARBON	1K	5%	1/6W
R316	1-249-441-11	CARBON	100K	5%	1/6W
R317	1-249-441-11	CARBON	100K	5%	1/6W
R318	1-249-441-11	CARBON	100K	5%	1/6W
R319	1-249-441-11	CARBON	100K	5%	1/6W
R320	1-249-417-11	CARBON	1K	5%	1/6W
R321	1-249-417-11	CARBON	1K	5%	1/6W
R322	1-249-417-11	CARBON	1K	5%	1/6W
R323	1-249-417-11	CARBON	1K	5%	1/6W
R324	1-249-414-11	CARBON	560	5%	1/6W
R325	1-249-429-11	CARBON	10K	5%	1/6W
R326	1-249-429-11	CARBON	10K	5%	1/6W
R327	1-249-429-11	CARBON	10K	5%	1/6W
R328	1-249-429-11	CARBON	10K	5%	1/6W
R329	1-249-423-11	CARBON	3.3K	5%	1/6W
R330	1-249-423-11	CARBON	3.3K	5%	1/6W
R331	1-249-423-11	CARBON	3.3K	5%	1/6W
R332	1-249-423-11	CARBON	3.3K	5%	1/6W
R333	1-249-429-11	CARBON	10K	5%	1/6W
R334	1-249-429-11	CARBON	10K	5%	1/6W
R335	1-249-429-11	CARBON	10K	5%	1/6W
R336	1-249-429-11	CARBON	10K	5%	1/6W
R337	1-249-429-11	CARBON	10K	5%	1/6W
R338	1-249-415-11	CARBON	680	5%	1/6W
R339	1-249-433-11	CARBON	22K	5%	1/6W
R340	1-249-441-11	CARBON	100K	5%	1/6W

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
R341	1-249-425-11	CARBON	4.7K	5%	1/6W	
R342	1-249-429-11	CARBON	10K	5%	1/6W	
R343	1-249-417-11	CARBON	1K	5%	1/6W	
R344	1-249-434-11	CARBON	27K	5%	1/6W	
R345	1-249-434-11	CARBON	27K	5%	1/6W	
R346	1-247-849-00	CARBON	5.6K	5%	1/6W	
R347	1-247-849-00	CARBON	5.6K	5%	1/6W	
R348	1-249-438-11	CARBON	56K	5%	1/6W	
R349	1-249-438-11	CARBON	56K	5%	1/6W	
R352	1-249-409-11	CARBON	220	5%	1/6W	
R353	1-249-409-11	CARBON	220	5%	1/6W	
R355	1-249-429-11	CARBON	10K	5%	1/6W	
R356	1-249-429-11	CARBON	10K	5%	1/6W	
R357	1-249-429-11	CARBON	10K	5%	1/6W	
R358	1-249-429-11	CARBON	10K	5%	1/6W	
R359	1-249-429-11	CARBON	10K	5%	1/6W	
R360	1-249-429-11	CARBON	10K	5%	1/6W	
R361	1-249-429-11	CARBON	10K	5%	1/6W	
R362	1-249-429-11	CARBON	10K	5%	1/6W	
R363	1-249-429-11	CARBON	10K	5%	1/6W	
R364	1-249-429-11	CARBON	10K	5%	1/6W	
R365	1-249-429-11	CARBON	10K	5%	1/6W	
R366	1-249-410-11	CARBON	270	5%	1/6W	
R367	1-249-441-11	CARBON	100K	5%	1/6W	
R368	1-249-423-11	CARBON	3.3K	5%	1/6W	
R369	1-215-493-00	CARBON	1M	5%	1/6W	
R371	1-249-433-11	CARBON	22K	5%	1/6W	
R372	1-249-429-11	CARBON	10K	5%	1/6W	
R373	1-249-425-11	CARBON	4.7K	5%	1/6W	
R374	1-249-409-11	CARBON	220	5%	1/6W	
R375	1-249-441-11	CARBON	100K	5%	1/6W	
R376	1-249-441-11	CARBON	100K	5%	1/6W	
R377	1-249-410-11	CARBON	270	5%	1/6W	
R378	1-249-410-11	CARBON	270	5%	1/6W	
R379	1-249-410-11	CARBON	270	5%	1/6W	
R380	1-249-410-11	CARBON	270	5%	1/6W	
R381	1-249-410-11	CARBON	270	5%	1/6W	
R382	1-249-417-11	CARBON	1K	5%	1/6W	
R383	1-249-441-11	CARBON	100K	5%	1/6W	
R384	1-249-429-11	CARBON	10K	5%	1/6W	
R385	1-249-429-11	CARBON	10K	5%	1/6W	
R386	1-249-429-11	CARBON	10K	5%	1/6W	
R387	1-249-413-11	CARBON	470	5%	1/6W	
R388	1-215-493-00	CARBON	1M	5%	1/6W	
R389	1-249-417-11	CARBON	1K	5%	1/6W	
R391	1-249-429-11	CARBON	10K	5%	1/6W	
R401	1-249-429-11	CARBON	10K	5%	1/6W	
R402	1-215-493-00	CARBON	1M	5%	1/6W	
R403	1-249-429-11	CARBON	10K	5%	1/6W	
R405	1-249-430-11	CARBON	12K	5%	1/6W	
R406	1-249-416-11	CARBON	820	5%	1/6W	
R407	1-249-441-11	CARBON	100K	5%	1/6W	
R408	1-215-493-00	CARBON	1M	5%	1/6W	
R409	1-247-847-11	CARBON	4.7K	5%	1/6W	
R409	1-215-485-00	CARBON	470K	5%	1/6W	
R410	1-215-485-00	CARBON	470K	5%	1/6W	
R411	1-249-430-11	CARBON	12K	5%	1/6W	

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
R412	1-249-416-11	CARBON	820	5%	1/6W	
R413	1-249-441-11	CARBON	100K	5%	1/6W	
R414	1-215-493-00	CARBON	1M	5%	1/6W	
R415	1-249-430-11	CARBON	12K	5%	1/6W	
R416	1-249-413-11	CARBON	470	5%	1/6W	
R417	1-249-441-11	CARBON	100K	5%	1/6W	
R418	1-215-493-00	CARBON	1M	5%	1/6W	
R419	1-249-430-11	CARBON	12K	5%	1/6W	
R420	1-249-414-11	CARBON	560	5%	1/6W	
R421	1-249-441-11	CARBON	100K	5%	1/6W	
R422	1-215-493-00	CARBON	1M	5%	1/6W	
R423	1-249-430-11	CARBON	12K	5%	1/6W	
R424	1-249-415-11	CARBON	680	5%	1/6W	
R425	1-249-441-11	CARBON	100K	5%	1/6W	
R426	1-215-493-00	CARBON	1M	5%	1/6W	
R427	1-249-430-11	CARBON	12K	5%	1/6W	
R428	1-249-415-11	CARBON	680	5%	1/6W	
R429	1-249-441-11	CARBON	100K	5%	1/6W	
R430	1-215-493-00	CARBON	1M	5%	1/6W	
R431	1-249-430-11	CARBON	12K	5%	1/6W	
R432	1-249-415-11	CARBON	680	5%	1/6W	
R433	1-249-441-11	CARBON	100K	5%	1/6W	
R434	1-215-485-00	CARBON	470K	5%	1/6W	
R435	1-215-485-00	CARBON	470K	5%	1/6W	
R436	1-215-485-00	CARBON	470K	5%	1/6W	
R437	1-215-493-00	CARBON	1M	5%	1/6W	
R438	1-249-421-11	CARBON	2.2K	5%	1/6W	
R439	1-215-477-00	CARBON	220K	5%	1/6W	
R440	1-249-435-11	CARBON	33K	5%	1/6W	
R441	1-249-425-11	CARBON	4.7K	5%	1/6W	
R449	1-249-425-11	CARBON	4.7K	5%	1/6W	
R451	1-249-429-11	CARBON	10K	5%	1/6W	
R452	1-215-493-00	CARBON	1M	5%	1/6W	
R453	1-249-429-11	CARBON	10K	5%	1/6W	
R455	1-249-430-11	CARBON	12K	5%	1/6W	
R456	1-249-416-11	CARBON	820	5%	1/6W	
R457	1-249-441-11	CARBON	100K	5%	1/6W	
R458	1-215-493-00	CARBON	1M	5%	1/6W	
R459	1-215-485-00	CARBON	470K	5%	1/6W	
R460	1-215-485-00	CARBON	470K	5%	1/6W	
R461	1-249-430-11	CARBON	12K	5%	1/6W	
R462	1-249-416-11	CARBON	820	5%	1/6W	
R463	1-249-441-11	CARBON	100K	5%	1/6W	
R464	1-215-493-00	CARBON	1M	5%	1/6W	
R465	1-249-430-11	CARBON	12K	5%	1/6W	
R466	1-249-413-11	CARBON	470	5%	1/6W	
R467	1-249-441-11	CARBON	100K	5%	1/6W	
R468	1-215-493-00	CARBON	1M	5%	1/6W	
R469	1-249-430-11	CARBON	12K	5%	1/6W	
R470	1-249-414-11	CARBON	560	5%	1/6W	
R471	1-249-441-11	CARBON	100K	5%	1/6W	
R472	1-215-493-00	CARBON	1M	5%	1/6W	
R473	1-249-430-11	CARBON	12K	5%	1/6W	
R474	1-249-415-11	CARBON	680	5%	1/6W	
R475	1-249-441-11	CARBON	100K	5%	1/6W	
R476	1-215-493-00	CARBON	1M	5%	1/6W	
R477	1-249-430-11	CARBON	12K	5%	1/6W	
R478	1-249-415-11	CARBON	680	5%	1/6W	

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
R479	1-249-441-11	CARBON	100K	5%	1/6W	
R480	1-215-493-00	CARBON	1M	5%	1/6W	
R481	1-249-430-11	CARBON	12K	5%	1/6W	
R482	1-249-415-11	CARBON	680	5%	1/6W	
R483	1-249-441-11	CARBON	100K	5%	1/6W	
R484	1-215-485-00	CARBON	470K	5%	1/6W	
R485	1-215-485-00	CARBON	470K	5%	1/6W	
R486	1-215-485-00	CARBON	470K	5%	1/6W	
R487	1-215-493-00	CARBON	1M	5%	1/6W	
R488	1-249-421-11	CARBON	2.2K	5%	1/6W	
R489	1-215-477-00	CARBON	220K	5%	1/6W	
R490	1-249-435-11	CARBON	33K	5%	1/6W	
R491	1-249-425-11	CARBON	4.7K	5%	1/6W	
R499	1-247-847-00	CARBON	4.7K	5%	1/6W	
R501	1-249-409-11	CARBON	220	5%	1/6W	
R502	1-249-409-11	CARBON	220	5%	1/6W	
R505	1-249-429-11	CARBON	10K	5%	1/6W	
R506	1-249-429-11	CARBON	10K	5%	1/6W	
R507	1-249-437-11	CARBON	47K	5%	1/6W	
R508	1-249-437-11	CARBON	47K	5%	1/6W	
R509	1-215-485-00	CARBON	470K	5%	1/6W	
R510	1-249-431-11	CARBON	15K	5%	1/6W	
R511	1-215-493-00	CARBON	1M	5%	1/6W	
R512	1-249-439-11	CARBON	68K	5%	1/6W	
R513	1-249-435-11	CARBON	33K	5%	1/6W	
R514	1-215-485-00	CARBON	470K	5%	1/6W	
R515	1-249-432-11	CARBON	18K	5%	1/6W	
R516	1-215-493-00	CARBON	1M	5%	1/6W	
R517	1-249-430-11	CARBON	12K	5%	1/6W	
R518	1-215-493-00	CARBON	1M	5%	1/6W	
R519	1-249-438-11	CARBON	56K	5%	1/6W	
R520	1-249-424-11	CARBON	3.9K	5%	1/6W	
R521	1-215-473-00	CARBON	150K	5%	1/6W	
R522	1-249-409-11	CARBON	220	5%	1/6W	
R523	1-215-493-00	CARBON	1M	5%	1/6W	
R524	1-249-436-11	CARBON	39K	5%	1/6W	
R525	1-249-432-11	CARBON	18K	5%	1/6W	
R526	1-215-479-00	CARBON	270K	5%	1/6W	
R527	1-249-431-11	CARBON	15K	5%	1/6W	
R528	1-215-493-00	CARBON	1M	5%	1/6W	
R529	1-249-429-11	CARBON	10K	5%	1/6W	
R530	1-215-493-00	CARBON	1M	5%	1/6W	
R531	1-249-432-11	CARBON	18K	5%	1/6W	
R532	1-215-493-00	CARBON	1M	5%	1/6W	
R535	1-215-493-00	CARBON	1M	5%	1/6W	

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
R536	1-215-481-00	CARBON	330K	5%	1/6W	
R537	1-215-493-00	CARBON	1M	5%	1/6W	
R538	1-215-477-00	CARBON	220K	5%	1/6W	
R544	1-249-411-11	CARBON	330	5%	1/6W	
R551	1-247-849-00	CARBON	5.6K	5%	1/6W	
R601	1-249-431-11	CARBON	15K	5%	1/6W	
R602	1-249-421-11	CARBON	2.2K	5%	1/6W	
R603	1-215-485-00	CARBON	470K	5%	1/6W	
R604	1-249-421-11	CARBON	2.2K	5%	1/6W	
R605	1-249-425-11	CARBON	4.7K	5%	1/6W	
R606	1-215-493-00	CARBON	1M	5%	1/6W	
R607	1-249-429-11	CARBON	10K	5%	1/6W	
R608	1-249-429-11	CARBON	10K	5%	1/6W	
R619	1-249-417-11	CARBON	1K	5%	1/6W	
R620	1-249-417-11	CARBON	1K	5%	1/6W	
R621	1-249-414-11	CARBON	560	5%	1/6W	
R622	1-249-441-11	CARBON	100K	5%	1/6W	
R623	1-215-493-00	CARBON	1M	5%	1/6W	
R624	1-249-429-11	CARBON	10K	5%	1/6W	
R631	1-249-425-11	CARBON	4.7K	5%	1/6W	
R632	1-249-438-11	CARBON	56K	5%	1/6W	
R633	1-249-438-11	CARBON	56K	5%	1/6W	
R634	1-249-414-11	CARBON	560	5%	1/6W	
R635	1-247-756-11	CARBON	2.2K	5%	1/2W	
R636	1-247-756-11	CARBON	2.2K	5%	1/2W	
R637	1-247-756-11	CARBON	10	5%	1/2W	F
R638	1-249-420-11	CARBON	1.8K	5%	1/6W	
R639	1-247-727-11	(G-REF) CARBON	10	5%	1/2W	F
R640	1-247-752-11	CARBON	1K	5%	1/2W	
R641	1-247-752-11	CARBON	1K	5%	1/2W	
R642	1-212-881-61	FUSIBLE	100	5%	1/4W	F
R643	1-212-881-61	FUSIBLE	100	5%	1/4W	F
R651	1-249-431-11	CARBON	15K	5%	1/6W	
R652	1-249-421-11	CARBON	2.2K	5%	1/6W	
R653	1-215-485-00	CARBON	470K	5%	1/6W	
R654	1-249-421-11	CARBON	2.2K	5%	1/6W	
R655	1-249-425-11	CARBON	4.7K	5%	1/6W	
R656	1-215-493-00	CARBON	1M	5%	1/6W	
R657	1-249-429-11	CARBON	10K	5%	1/6W	
R658	1-247-855-00	CARBON	10K	5%	1/6W	
R681	1-249-425-11	CARBON	4.7K	5%	1/6W	
R682	1-249-438-11	CARBON	56K	5%	1/6W	
R683	1-249-438-11	CARBON	56K	5%	1/6W	
R684	1-249-414-11	CARBON	560	5%	1/6W	
R685	1-247-756-11	CARBON	2.2K	5%	1/2W	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R686	1-247-756-11	CARBON	2.2K	5%	1/2W
R687 Δ	1-247-727-11	CARBON	10	5%	1/2W F
R688	1-249-420-11	CARBON	1.8K	5%	1/6W
R689 Δ	1-247-727-11	(G-AEP)...CARBON	10	5%	1/2W F
R701	1-217-151-00	RES, METAL PLATE	0.22		
R702	1-249-414-11	CARBON	560	5%	1/6W
R703	1-249-414-11	CARBON	560	5%	1/6W
R704	1-215-471-00	CARBON	120K	5%	1/6W
R705	1-249-441-11	CARBON	100K	5%	1/6W
R706	1-249-433-11	CARBON	22K	5%	1/6W
R707	1-249-429-11	CARBON	10K	5%	1/6W
R708	1-249-433-11	CARBON	22K	5%	1/6W
R709	1-249-433-11	CARBON	22K	5%	1/6W
R710 Δ	1-247-744-11	CARBON	270	5%	1/2W F
R711	1-249-429-11	CARBON	10K	5%	1/6W
R712	1-249-437-11	CARBON	47K	5%	1/6W
R751	1-217-151-00	RES, METAL PLATE	0.22		
R752	1-249-414-11	CARBON	560	5%	1/6W
R753	1-249-414-11	CARBON	560	5%	1/6W
R754	1-215-471-00	CARBON	120K	5%	1/6W
R851 Δ	1-247-236-00	CARBON	680	5%	1/2W F
R852 Δ	1-247-236-00	CARBON	680	5%	1/2W F
R901	1-247-849-00	CARBON	5.6K	5%	1/6W
R902 Δ	1-213-076-61	FUSIBLE	56	5%	1W F
RV301	1-237-646-11	RES, VAR, SLIDE	50K (MIC LEVEL)		
RV302	1-237-647-11	RES, VAR, SLIDE	100K (BALANCE)		
RY701	1-515-503-00	RELAY			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S301	1-554-303-21	SWITCH, KEY BOARD (63Hz)
S302	1-554-303-21	SWITCH, KEY BOARD (150Hz)
S303	1-554-303-21	SWITCH, KEY BOARD (400Hz)
S304	1-554-303-21	SWITCH, KEY BOARD (1kHz)
S305	1-554-303-21	SWITCH, KEY BOARD (3kHz)
S306	1-554-303-21	SWITCH, KEY BOARD (6kHz)
S307	1-554-303-21	SWITCH, KEY BOARD (14kHz)
S308	1-554-303-21	SWITCH, KEY BOARD (EQ PRESET 1)
S309	1-554-303-21	SWITCH, KEY BOARD (EQ PRESET 2)
S310	1-554-303-21	SWITCH, KEY BOARD (EQ PRESET 3)
S311	1-554-303-21	SWITCH, KEY BOARD (EQ FLAT)
S312	1-554-303-21	SWITCH, KEY BOARD (DISPLAY)
S313	1-554-303-21	SWITCH, KEY BOARD (EQ MEMORY)
S314	1-554-303-21	SWITCH, KEY BOARD (EQ LEVEL:-)
S315	1-554-303-21	SWITCH, KEY BOARD (EQ LEVEL:+))
S316	1-554-303-21	SWITCH, KEY BOARD (TAPE)
S317	1-554-303-21	SWITCH, KEY BOARD (CD)
S318	1-554-303-21	SWITCH, KEY BOARD (TUNER)
S319	1-554-303-21	SWITCH, KEY BOARD (PHONO)
S320	1-554-303-21	SWITCH, KEY BOARD (VOLUME:+))
S321	1-554-303-21	SWITCH, KEY BOARD (VOLUME:-)
S322	1-554-303-21	SWITCH, KEY BOARD (MUTING)
S323	1-554-419-00	SWITCH, PUSH (1 KEY)(SAT/DBFB)
S951 Δ	1-553-318-00	SWITCH, PUSH (AC POWER)(1 KEY)(POWER)
S952 Δ	1-570-307-11	(E,Saudi Arabia) ... SWITCH, VOLTAGE CHANGE
T901 Δ	1-448-879-11	(E,Saudi Arabia) ... TRANSFORMER, POWER
T901 Δ	1-448-880-11	(G-AEP,AEP,UK) ... TRANSFORMER, POWER
TM901	1-536-705-00	TERMINAL BOARD (SP)
X301	1-527-532-00	OSCILLATOR, CERAMIC
X302	1-527-532-00	OSCILLATOR, CERAMIC

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

FH-215R
FH-1215CD

STEREO CASSETTE DECK

(TC-215R)

AEP Model
UK Model
E Model

Model Name Using Similar Mechanism	TC-R302
Tape Transport Mechanism Type	TCM-CMAY B-14

0 dB = 0.775 V

SECTION 1
OUTLINE

1-1. SERVICING PRECAUTION

Operation check of this set can be made by giving the following connections to CNP301 on the rear panel of the set.

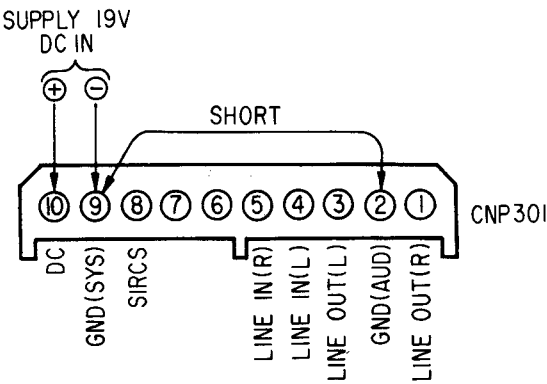


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<u>Title</u>	<u>Description</u>	<u>Page</u>
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Section 2.	Adjustments	TC-8
Section 3.	Diagrams	TC-8
3-1.	Mounting Diagram	TC-8
3-2.	Schematic Diagram	TC-11
Section 4.	Exploded Views and Parts List	TC-15
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SECTION 2 ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

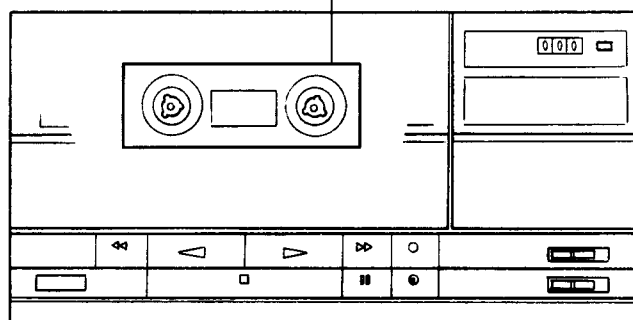
PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	30 – 70 g•cm (0.42 – 0.97 oz•inch)
Forward Back Tension		2 – 6 g•cm (0.03 – 0.08 oz•inch)
Reverse	CQ-102RB	30 – 70 g•cm (0.42 – 0.97 oz•inch)
Reverse Back Tension		2 – 6 g•cm (0.03 – 0.08 oz•inch)
Fast Forward	CQ-201B	90 – 160 g•cm (1.25 – 2.22 oz•inch)
Rewind		90 – 160 g•cm (1.25 – 2.22 oz•inch)

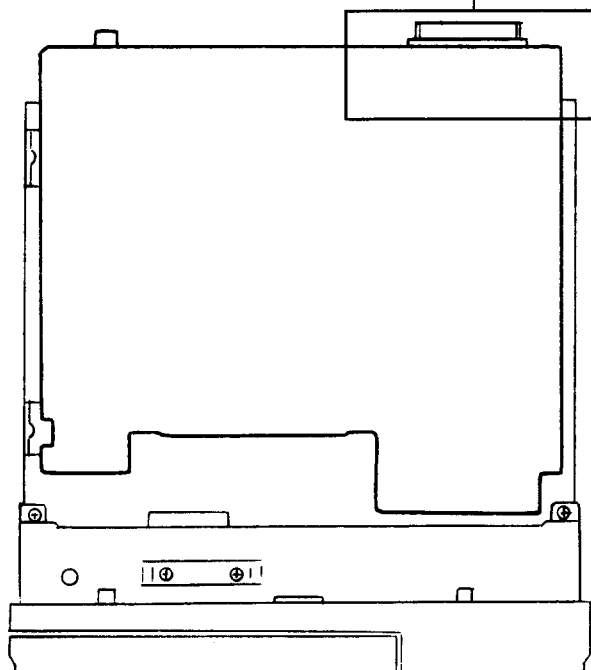
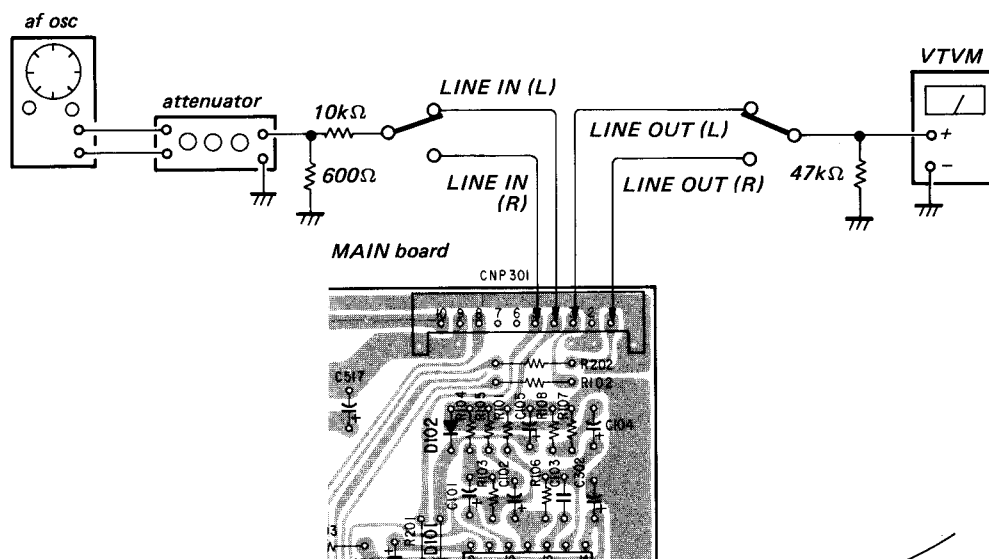


2.2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual. (Playback section may be adjusted earlier than record section.)
The adjustments should be performed for both L-CH and R-CH.

- Output level check point

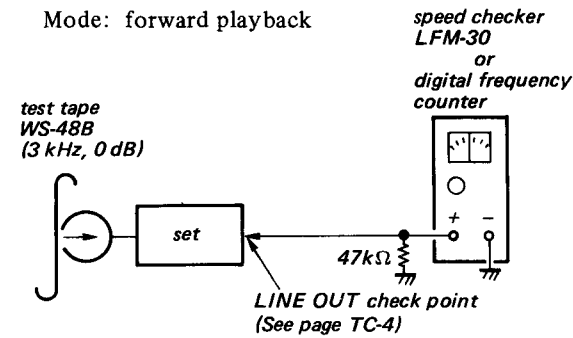
- Input level check point



Tape Speed Adjustment

Setting:
DOLBY NR: OFF

Procedure:
Mode: forward playback

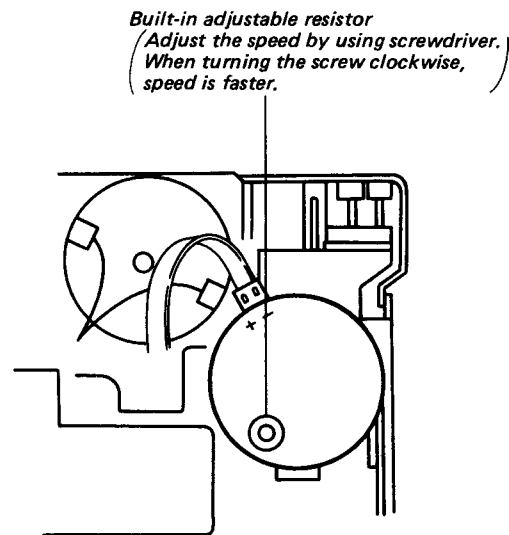


Specifications:

Speedchecker	Digital frequency counter
±2.0%	2,940 – 3,060 Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30 Hz).

Adjustment Location: Motor (M501)

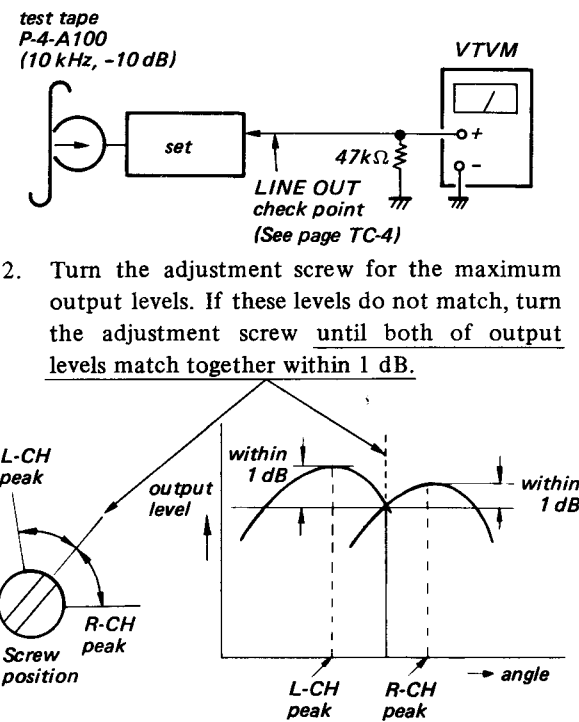


Note: Adjustment should be performed in both directions of FWD and REV so that the output level match together. Adjustment screws should be stopped turning in the clockwise direction. After adjustment is completed, lock the screws with locking compound.

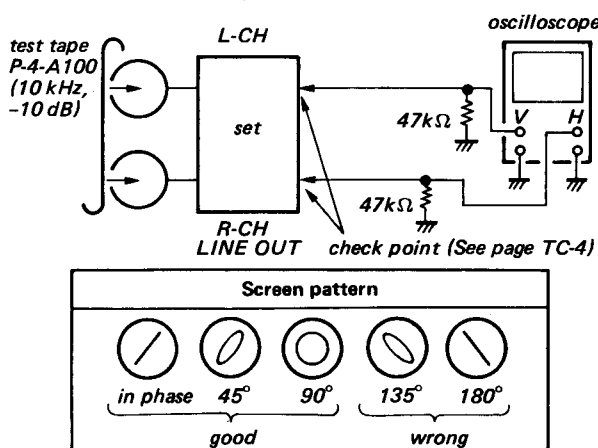
Forward Record/playback Head Azimuth Adjustment

Procedure:

1. Mode: forward playback

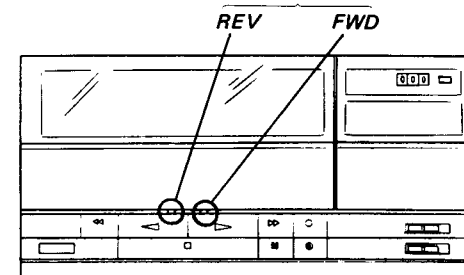


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.



4. After the adjustment, lock the screws with locking compound.

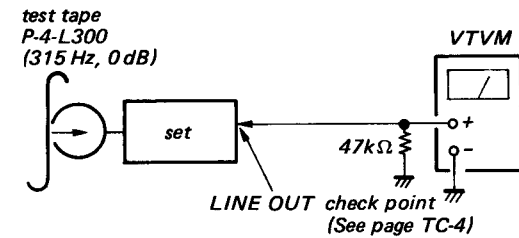
Adjustment Location: adjustment screw



Playback Level Adjustment

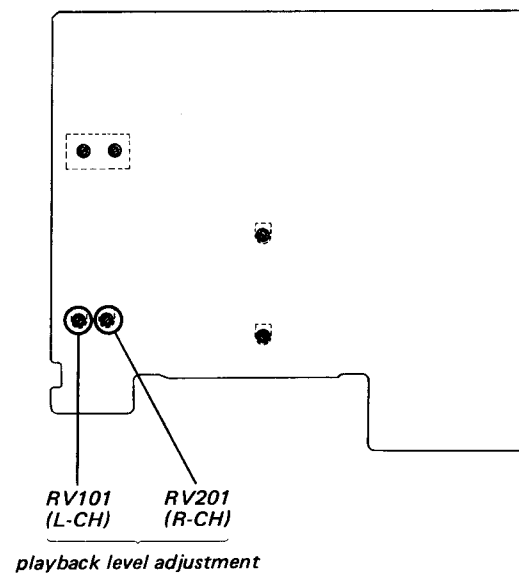
Setting:
DOLBY NR switch: OFF

Procedure:



1. Mode: FWD playback.
2. Adjust RV101 (L-CH) and RV201 (R-CH) to obtain 0.29 – 0.33 V (–8.5 to –7.5 dB) on the VTVM. Check that the Line out level does not change in playback mode while changing the mode from playback to stop several times.
3. Confirm on REV PLAYBACK mode.

Adjustment Location: MAIN board

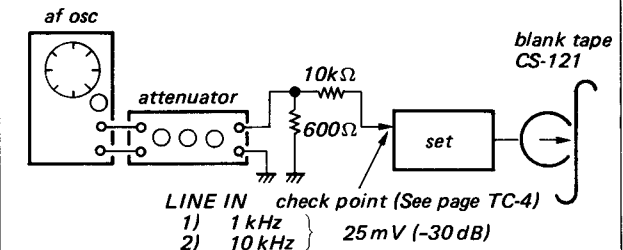


Record Bias Adjustment

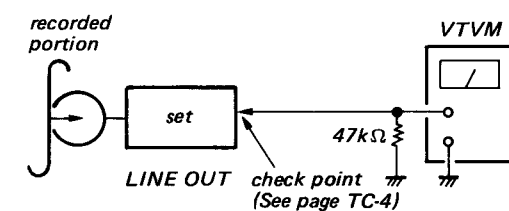
Setting:
DOLBY NR switch: OFF
ISS switch: 2

Procedure:

1. Mode: record



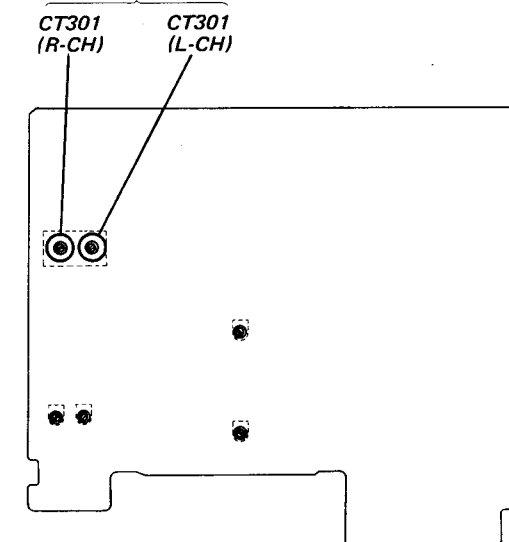
2. Mode: playback



Adjust CT301-1 (L-CH) and CT301-2 (R-CH) so that the measurement point level of 10 kHz signal in 0 dB relative to that of 1 kHz.

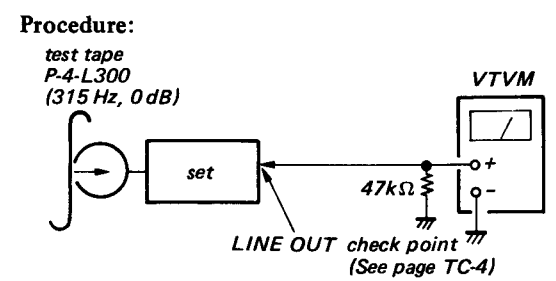
Adjustment Location: MAIN board

Record Bias adjustment



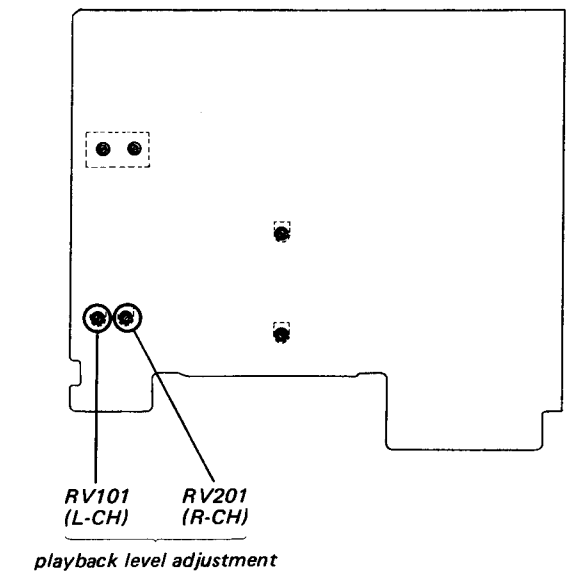
Playback Level Adjustment

Setting:
DOLBY NR switch: OFF



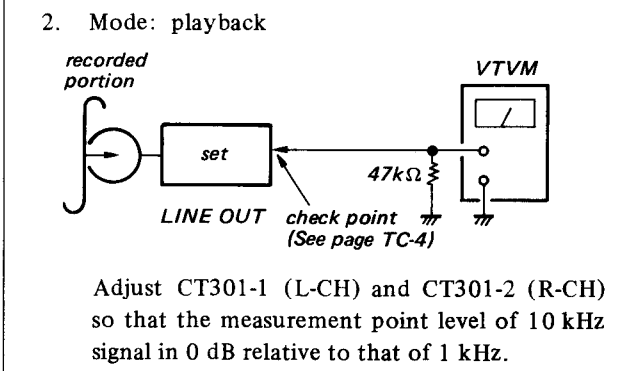
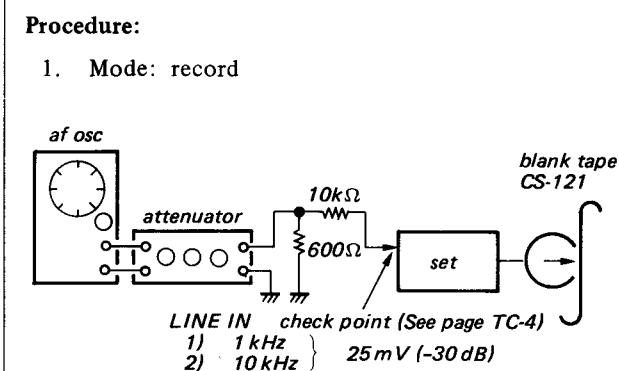
1. Mode: FWD playback.
2. Adjust RV101 (L-CH) and RV201 (R-CH) to obtain 0.29 – 0.33 V (–8.5 to –7.5 dB) on the VTVM.
Check that the Line out level does not change in playback mode while changing the mode from playback to stop several times.
3. Confirm on REV PLAYBACK mode.

Adjustment Location: MAIN board

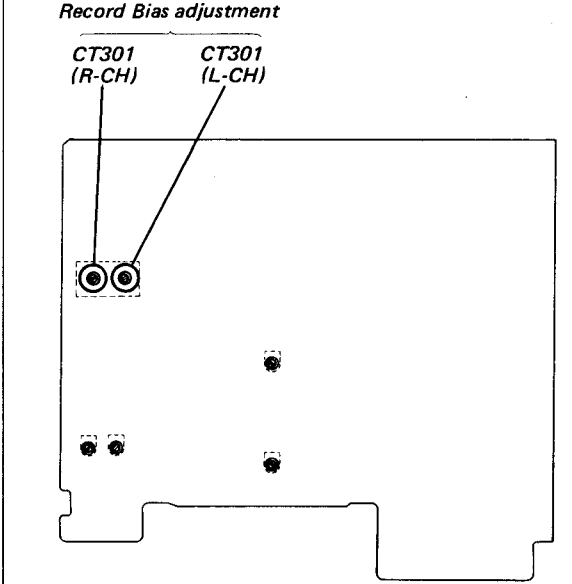


Record Bias Adjustment

Setting:
DOLBY NR switch: OFF
ISS switch: 2

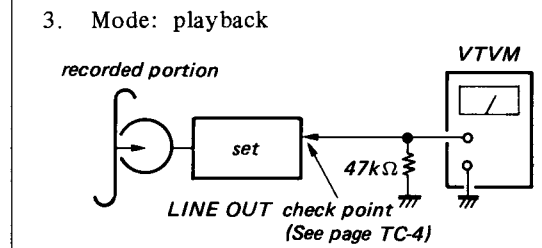
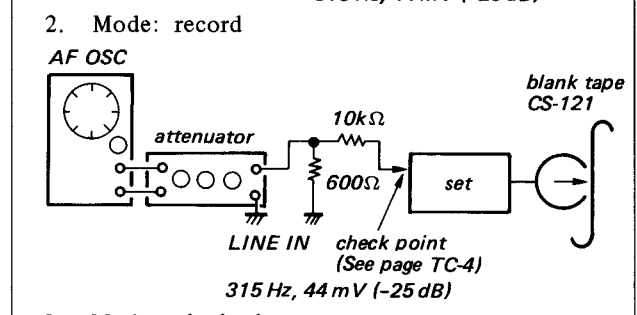
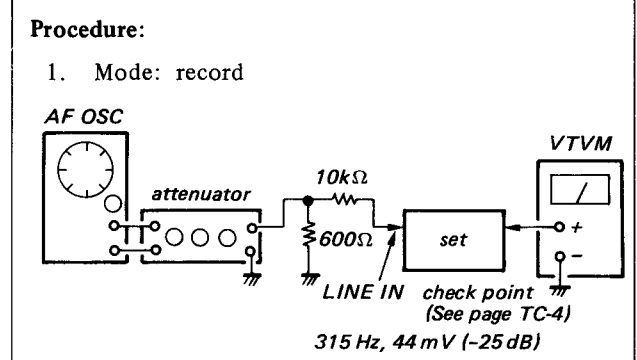


Adjustment Location: MAIN board



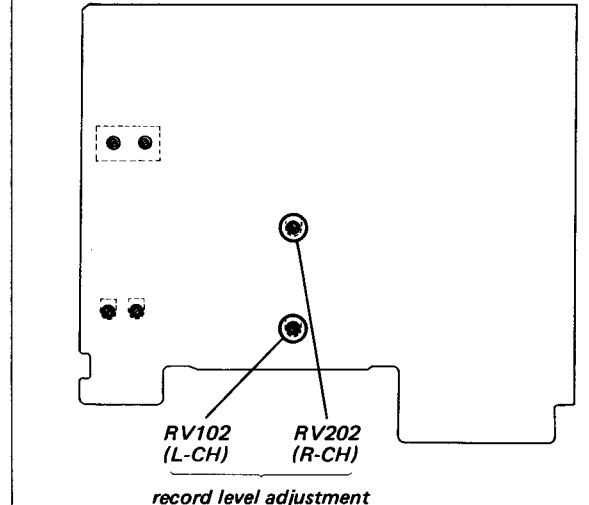
Record Level Adjustment

Setting:
DOLBY NR switch: OFF
ISS switch: 2

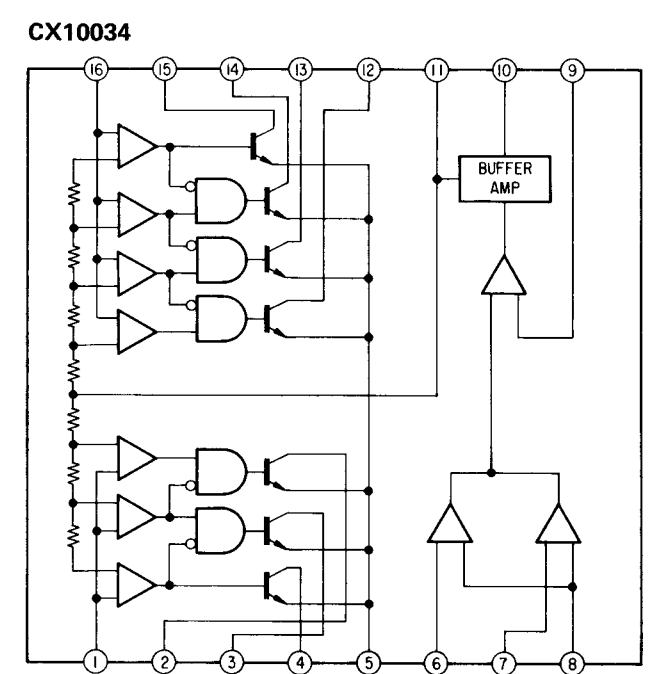
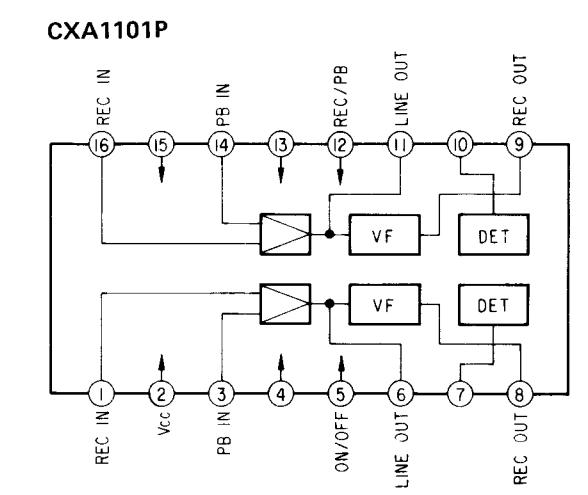


4. Adjust RV102 (L-CH) and RV202 (R-CH) so that playback output level of step 3 is 0 ± 0.5 dB relative to that of step 1.

Adjustment Location: MAIN board



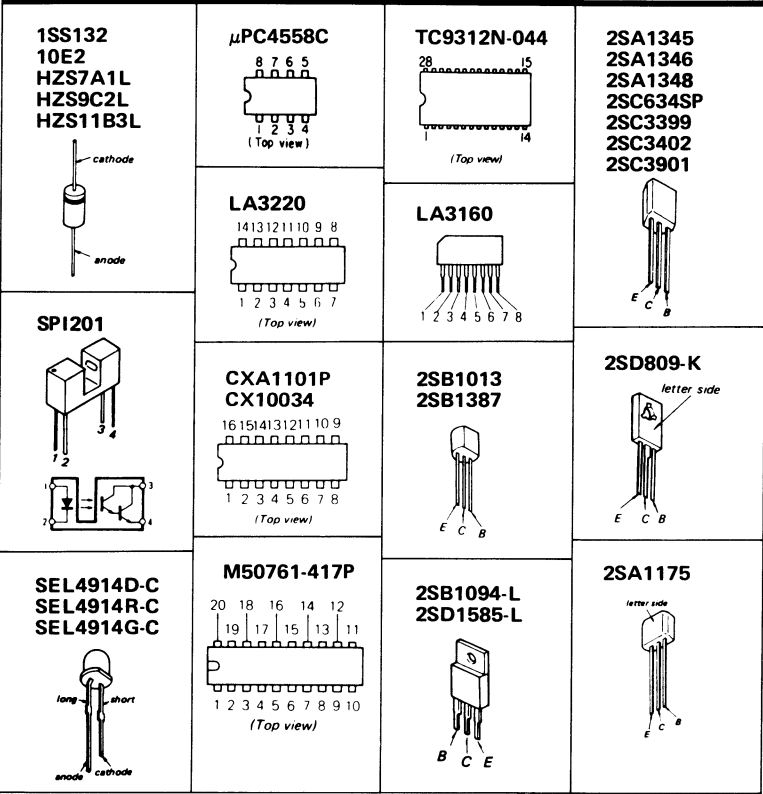
• IC BLOCK DIAGRAMS



SECTION 3
DIAGRAMS

3-1. MOUNTING DIAGRAM

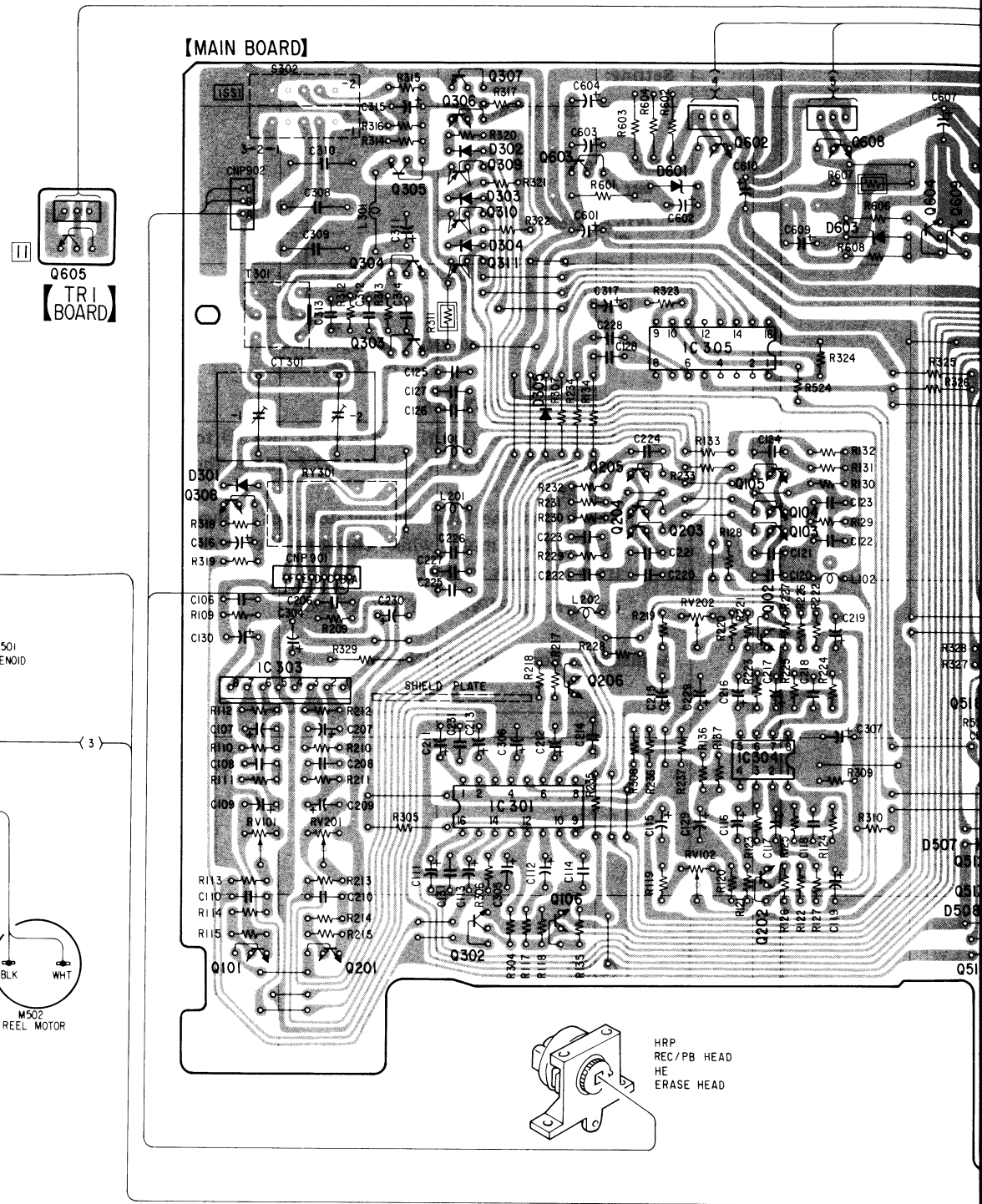
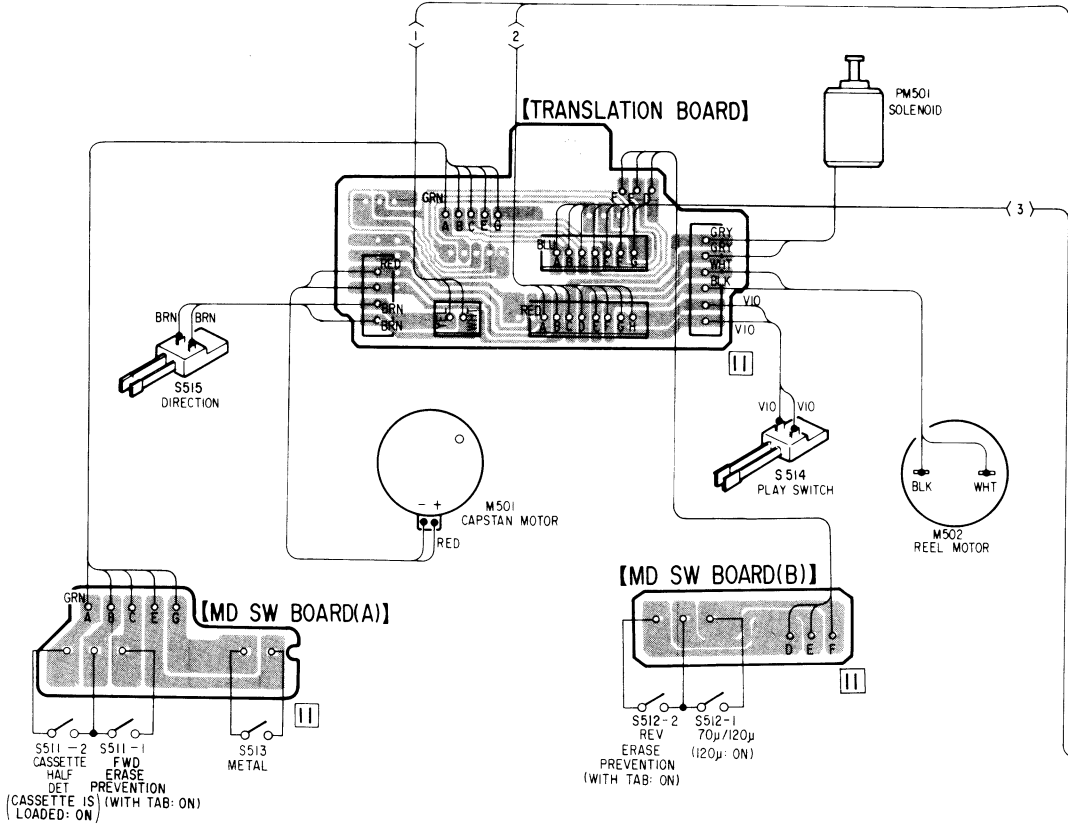
● Semiconductor Lead Layouts



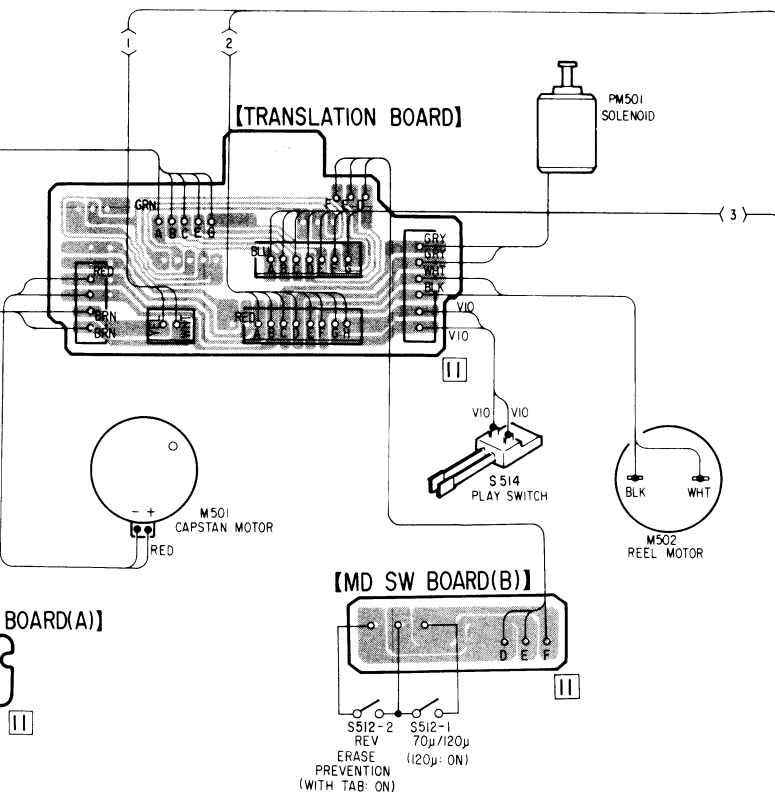
● SEMICONDUCTOR LOCATIONS

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D101	C-14	D604	F-12	Q310	B-9
D102	B-14	D605	E-12	Q311	C-9
D201	C-14			Q501	G-13
D202	D-14	IC301	F-9	Q502	H-13
D301	D-7	IC302	C-14	Q503	G-13
D302	B-9	IC303	E-8	Q504	G-13
D303	B-9	IC304	F-11	Q505	H-14
D304	B-9	IC305	C-10	Q506	G-14
D305	C-9	IC501	F-13	Q507	G-14
D501	G-14	IC502	E-14	Q508	G-13
D502	G-13			Q509	G-14
D503	F-14	Q101	G-7	Q510	H-14
D504	H-14	Q102	E-11	Q511	G-14
D505	H-14	Q103	D-11	Q512	F-12
D506	G-14	Q104	D-11	Q513	F-12
D507	F-12	Q105	D-11	Q514	G-12
D508	G-12	Q106	G-9	Q515	G-12
D509	E-13	Q201	G-8	Q516	D-12
D510	D-13	Q202	F-11	Q517	D-14
D511	E-13	Q203	D-10	Q518	E-12
D512	I-14	Q204	D-10	Q519	H-12
D513	I-13	Q205	D-10	Q520	E-13
D514	I-12	Q206	E-9	Q601	B-16
D515	J-13	Q301	C-13	Q602	B-10
D516	I-13	Q302	G-9	Q603	B-9
D517	I-12	Q303	C-8	Q604	B-12
D518	B-13	Q304	C-8	Q605	B-6
D519	H-12	Q305	B-8	Q606	B-12
D520	H-13	Q306	B-9	Q607	B-16
D601	B-10	Q307	A-9	Q608	B-11
D602	B-12	Q308	D-7	Q609	B-12
D603	B-11	Q309	B-9	Q901	H-16

Note:
● : parts extracted from the component side.
● : indicates side identified with part number.

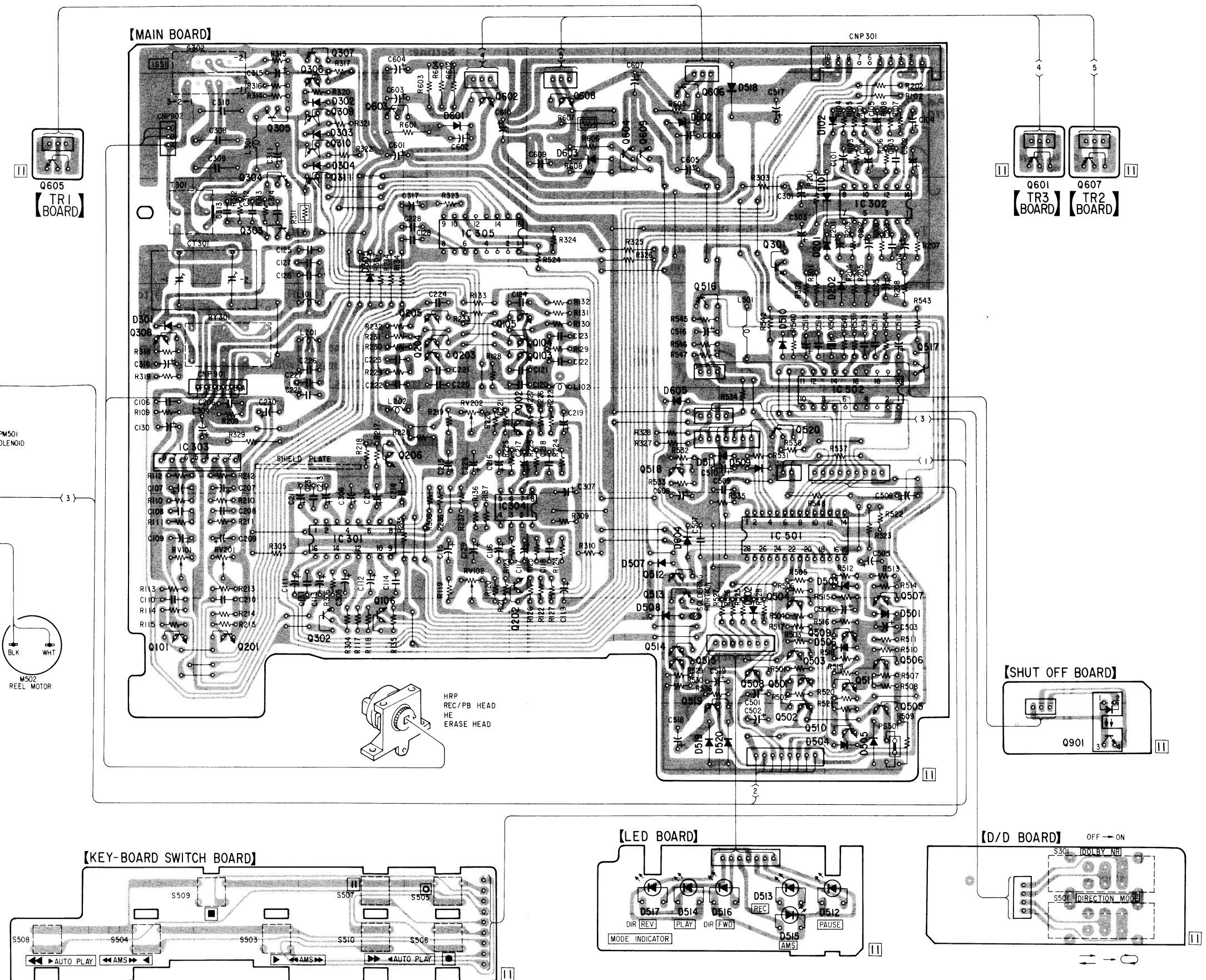


ected from the component side.
side identified with part number.



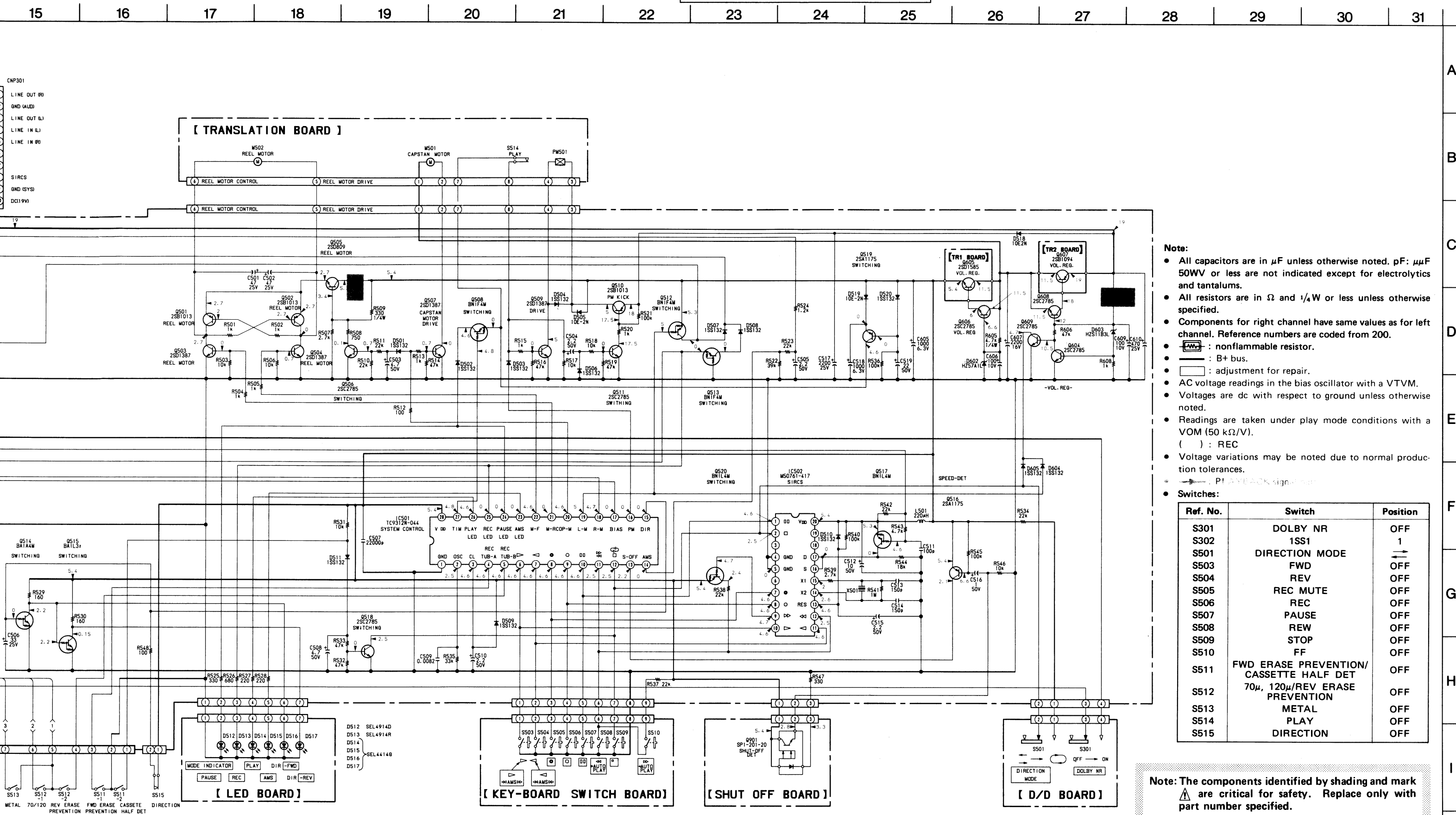
BOARD(A)]

II



- See page TC-7 for IC block diagrams.





- Note:**
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
 - Components for right channel have same values as for left channel. Reference numbers are coded from 200.
 - : nonflammable resistor.
 - : B+ bus.
 - : adjustment for repair.
 - AC voltage readings in the bias oscillator with a VTVM.
 - Voltages are dc with respect to ground unless otherwise noted.
 - Readings are taken under play mode conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
 - () : REC
 - Voltage variations may be noted due to normal production tolerances.
 - : P1 PLAYBACK signal.
 - Switches:**

Ref. No.	Switch	Position
S301	DOLBY NR	OFF
S302	1SS1	1
S501	DIRECTION MODE	
S503	FWD	OFF
S504	REV	OFF
S505	REC MUTE	OFF
S506	REC	OFF
S507	PAUSE	OFF
S508	REW	OFF
S509	STOP	OFF
S510	FF	OFF
S511	FWD ERASE PREVENTION/ CASSETTE HALF DET	OFF
S512	70 μ , 120 μ /REV ERASE PREVENTION	OFF
S513	METAL	OFF
S514	PLAY	OFF
S515	DIRECTION	OFF

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

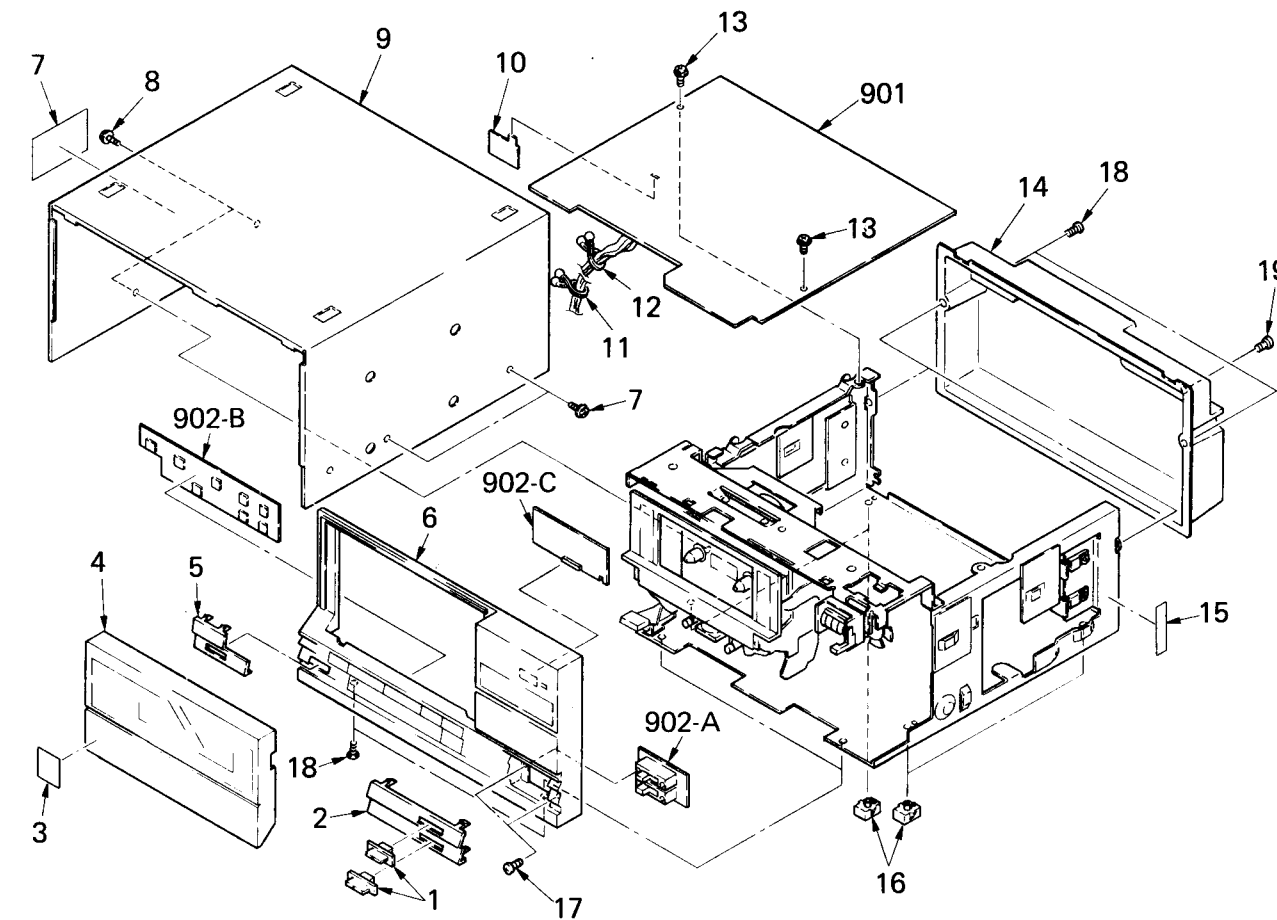
SECTION 4

EXPLODED VIEWS AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE (WHITE)
Cabinet's Color Parts' Color

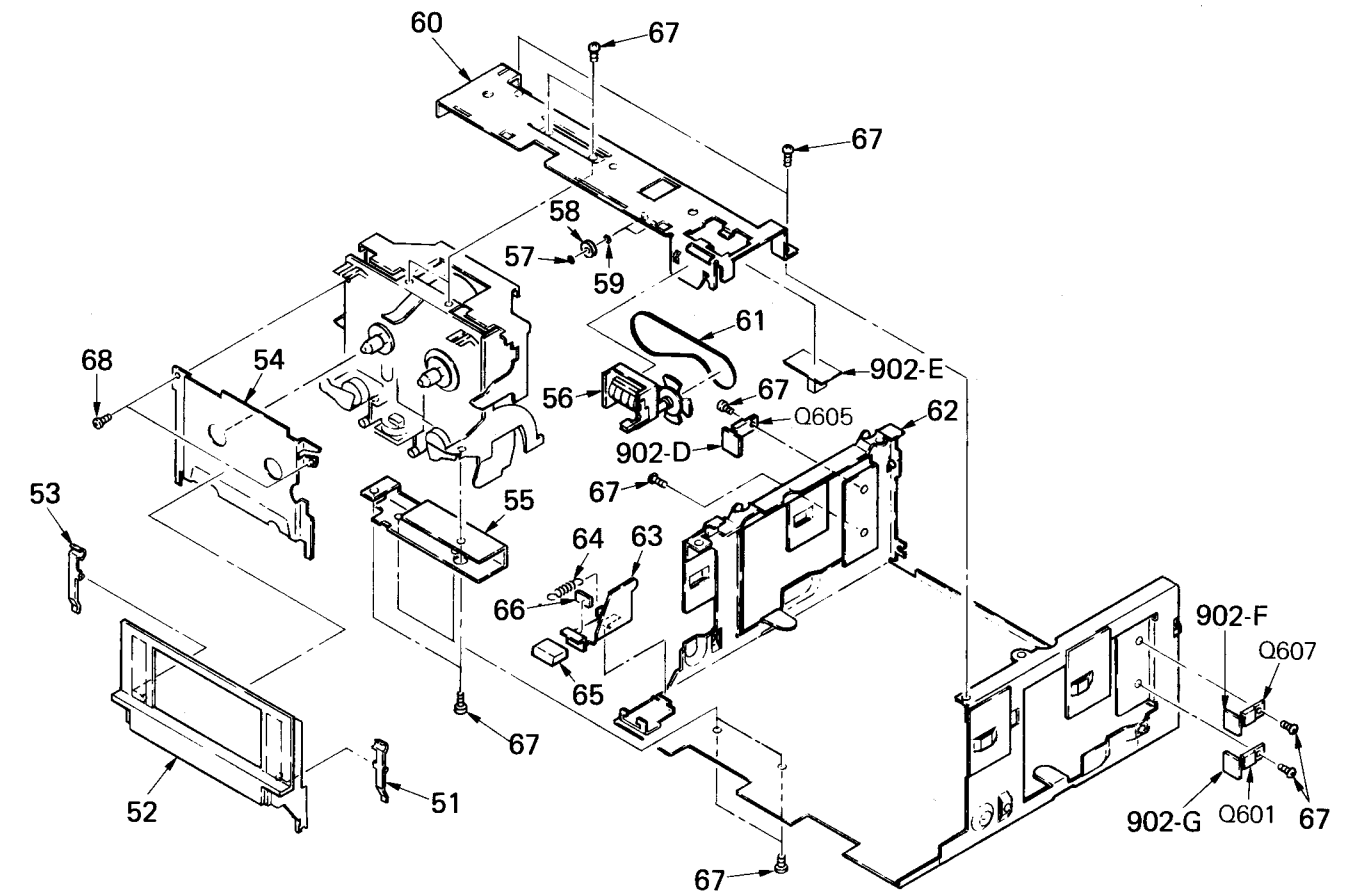
4-1.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	3-333-629-01	KNOB, SLIDE		11	*2-056-665-00	HOLDER, WIRE (PURGE LOCK 5 DIA)	
2	3-333-630-01	SASH (B), CONTROL BUTTON		12	3-701-417-01	PURGE LOCK (DIA. 11)	
3	3-703-710-41	STICKER, SONY SYMBOL (12)		13	3-703-249-01	SCREW, S TIGHT, +PTWH 3X6	
4	X-3333-607-1	(E).....LID ASSY (G), CASSETTE		14	*3-325-561-31	PLATE, JACK	
	X-3333-608-1	(AEP,UK,)...LID ASSY (S), CASSETTE		15	*3-701-030-00	LABEL, SERIAL NUMBER	
5	3-333-619-01	SASH (A), CONTROL BUTTON		16	X-4902-937-1	FOOT ASSY, RUBBER	
6	A-2310-358-A	PANEL ASSY, FRONT		17	7-628-253-90	SCREW +PS 2.6X4	
7	*3-333-642-01	LABEL, MODEL NUMBER		18	7-682-147-01	SCREW +BVTT 3X6 (S)	
8	4-886-821-21	SCREW, M3 CASE STOPPER		19	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
9	4-920-118-11	CASE		901	*A-2056-366-A	MOUNTED PCB, SYSTEM CONTROL	
10	*3-329-941-01	PLATE, SHIELD		902	1-622-280-11	PC BOARD, SYSTEM CONTROL (Including A-G)	

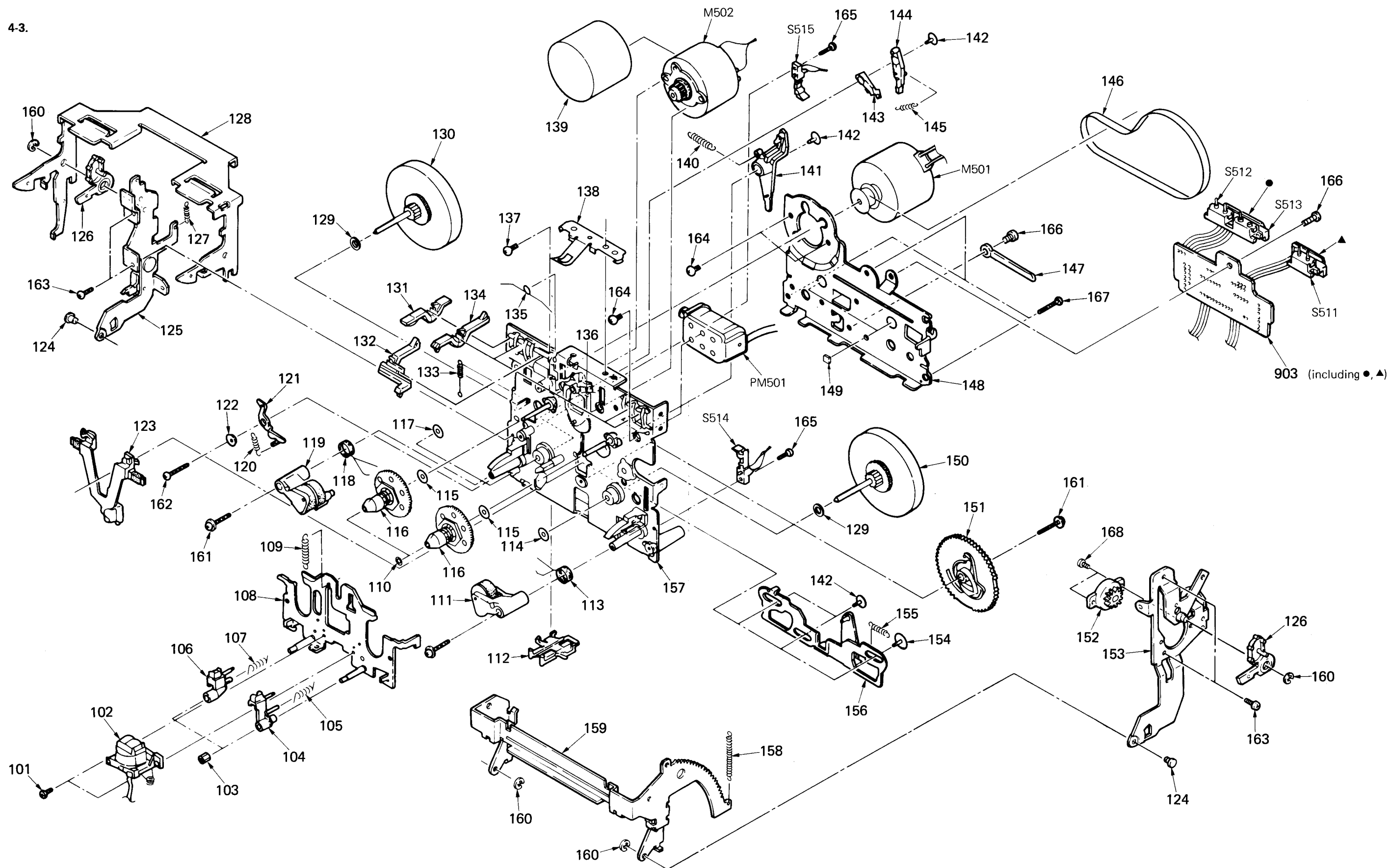
Fig 4-1, Fig 4-2

4-2.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	3-307-372-00	SPRING (RIGHT)		61	3-321-362-01	BELT (A)	
52	X-3333-606-1	HOLDER ASSY, CASSETTE		62	*X-3333-609-1	CHASSIS ASSY (S)	
53	3-307-371-00	SPRING (LEFT)		63	*3-333-623-01	SLIDER, EJECT	
54	*3-333-628-01	PLATE, ORNAMENTAL		64	3-578-393-00	SPRING, TENSION	
55	*3-333-624-01	BRACKET, MD		65	3-333-621-01	BUTTON, EJECT	
56	1-548-589-71	COUNTER, TAPE (MIDDLE TYPE)		66	9-911-841-XX	CUSHION, CASSETTE LID	
57	3-558-708-11	WASHER, STOPPER		67	7-682-147-01	SCREW +BVTT 3X6 (S)	
58	3-549-452-00	PULLEY, SHUT-OFF		68	7-621-255-10	SCREW +B 2X3	
59	3-701-437-11	WASHER		Q601	8-729-111-67	TRANSISTOR 2SB1094-L	
60	*X-3333-605-1	CHASSIS ASSY, JOINT		Q605	8-729-107-25	TRANSISTOR 2SD1585-L	
				Q607	8-729-111-67	TRANSISTOR 2SB1094-L	

4-3.



SECTION 5

ELECTRICAL PARTS LIST

NOTE:
· Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
· If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μF.
RESISTORS
· All resistors are in ohms.
· F : nonflammable
COILS
· MMH : mH, UH : μH
SEMICONDUCTORS
In each case, U : μ, for example:
UA....: μA..., UPA....: μPA..., UPC....: μPC, UPD....: μPD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	3-391-109-01	SCREW, WASHER		140	3-391-133-01	SPRING	
102	X-3391-121-1	HEAD ASSY, ROTARY (HRP/HE)		141	X-3391-114-1	ARM ASSY, PLAY	
103	3-391-110-01	NUT, ADJUSTMENT		142	3-391-126-01	CAP	
104	3-391-111-01	GUIDE, TAPE		143	3-391-141-01	ARM (A)	
105	3-391-112-01	SPRING (RIGHT)		144	3-391-142-01	ARM (B)	
106	3-391-156-01	HOLDER, SENSOR		145	3-391-140-01	SPRING (A)	
107	3-391-113-01	SPRING (LEFT)		146	3-391-107-01	BELT, MAIN	
108	X-3391-103-1	HEAD ASSY, PLATE		147	*3-701-822-00	HOLDER, WIRE	
109	3-391-114-01	SPRING		148	*3-391-130-01	BRACKET (B), F/W	
110	3-701-436-11	WASHER, 1.6		149	3-391-129-01	SPACER	
111	X-3391-104-1	PINCH ROLLER ASSY		150	X-3391-149-1	ASSY F/W	
112	3-391-137-01	HOLDER, REED		151	3-391-128-01	GEAR (B), CAM	
113	3-391-115-01	SPRING (RIGHT)		152	X-3391-151-1	DAMPER ASSY	
114	3-391-119-01	SEAL, WASHER OIL		153	*X-3391-150-1	BKT ASSY, DAMPER	
115	3-701-437-11	WASHER		154	3-391-143-01	CAP	
116	X-3391-144-1	REEL ASSY		155	3-391-127-01	SPRING	
117	3-391-117-01	SEAL, WASHER OIL		156	X-3391-112-1	PLATE ASSY, SLIDER	
118	3-391-116-01	SPRING (LEFT)		157	X-3391-110-1	CHASSIS ASSY, MD	
119	X-3391-105-1	PINCH ROLLER ASSY		158	3-391-184-01	SPRING	
120	3-391-122-01	SPRING (A)		159	*3-391-182-01	HOLDER, CASSETTE	
121	3-391-121-01	ARM, EJECT SAFETY		160	7-624-105-04	STOP RING 2.3, TYPE -E	
122	3-391-120-01	CALLOR		161	7-685-107-19	SCREW +P 2X12 TYPE2 SLIT	
123	X-3391-108-1	BRAKE ASSY		162	7-685-105-19	SCREW +P 2X8 TYPE2 SLIT	
124	3-391-183-01	SHAFT (B), HOLDER FULCRUM		163	7-685-790-04	SCREW +PTT 2.6X4 (S)	
125	*X-3391-152-1	ARM ASSY, EJECT		164	7-628-253-90	SCREW +PS 2.6X4	
126	3-391-185-01	LEVER, STOP		165	7-685-104-19	SCREW +P 2X6 TYPE2 SLIT	
127	3-391-181-01	SP, LEVER RETURN		166	7-685-750-04	SCREW +PTT 3X5 (S)	
128	*3-391-180-01	ARM, EJECT		167	7-685-131-19	SCREW +P 2.6X4 TYPE2 NON-SLIT	
129	3-701-438-11	WASHER, 2.5		168	7-685-780-04	SCREW +PTT 2X3 (S)	
130	X-3391-125-1	ASSY F/W		903	1-589-077-11	PC BOARD BLOCK	
131	3-391-178-01	LEVER, PACK		M501	X-3391-130-1	MOTOR ASSY, CAPSTAN	
132	3-391-193-01	LEVER, METAL		M502	X-3391-118-1	MOTOR ASSY, REEL	
133	3-391-139-01	SPRING		PM501	1-454-428-11	SOLENOID, PLUNGER	
134	3-391-188-01	LEVER, REC		S511	1-570-720-11	SWITCH, PUSH (1 KEY) (FWD ERASE PROOF/CASSETTE HALF DET)	
135	3-391-124-01	SPRING		S512	1-570-720-11	SWITCH, PUSH (1 KEY) (70U/120U/REV ERASE PROOF)	
136	X-3391-111-1	IDLER ASSY		S513	1-570-723-11	SWITCH, PUSH (1 KEY) (METAL)	
137	3-391-118-01	SCREW, WASHER		S514	1-570-719-11	SWITCH, LEAF (PLAY)	
138	3-391-177-01	SPRING		S515	1-570-721-11	SWITCH, LEAF (DIRECTION)	
139	3-391-132-01	PLATE, SHIELD					

ELECTRICAL PARTS						ELECTRICAL PARTS					
Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
901	*A-2056-366-A	MOUNTED PCB, SYSTEM CONTROL				C312	1-130-285-00	FILM	0.0033MF	5%	100V
902	1-622-280-11	PC BOARD, SYSTEM CONTROL (Including A-G)				C313	1-130-285-00	FILM	0.0033MF	5%	100V
903	1-589-077-11	PC BOARD BLOCK				C314	1-130-285-00	FILM	0.0033MF	5%	100V
C101	1-124-927-11	ELECT	4.7MF	20%	50V	C315	1-124-902-00	ELECT	0.47MF	20%	50V
C102	1-124-443-00	ELECT	100MF	20%	10V	C316	1-123-875-91	ELECT	10MF	20%	50V
C103	1-162-199-31	CERAMIC	10PF	5%	50V	C317	1-124-791-11	ELECT	1MF	20%	50V
C104	1-123-875-91	ELECT	10MF	20%	50V	C501	1-124-477-11	ELECT	47MF	20%	25V
C105	1-124-927-11	ELECT	4.7MF	20%	50V	C502	1-124-477-11	ELECT	47MF	20%	25V
C106	1-162-291-31	CERAMIC	560PF	10%	50V	C503	1-124-927-11	ELECT	4.7MF	20%	50V
C107	1-124-443-00	ELECT	100MF	20%	10V	C504	1-124-925-11	ELECT	2.2MF	20%	50V
C108	1-136-157-00	FILM	0.022MF	5%	50V	C505	1-124-925-11	ELECT	2.2MF	20%	50V
C109	1-124-927-11	ELECT	4.7MF	20%	50V	C506	1-123-343-00	ELECT	33MF	20%	25V
C110	1-161-377-00	CERAMIC	0.0047MF	20%	16V	C507	1-161-494-00	CERAMIC	0.022MF		25V
C111	1-124-927-11	ELECT	4.7MF	20%	50V	C508	1-124-927-11	ELECT	4.7MF	20%	50V
C112	1-124-927-11	ELECT	4.7MF	20%	50V	C509	1-130-482-00	MYLAR	0.0082MF	5%	50V
C113	1-124-927-11	ELECT	4.7MF	20%	50V	C510	1-124-925-11	ELECT	2.2MF	20%	50V
C114	1-136-175-00	FILM	0.68MF	5%	50V	C511	1-162-282-31	CERAMIC	100PF	10%	50V
C115	1-124-927-11	ELECT	4.7MF	20%	50V	C512	1-123-875-91	ELECT	10MF	20%	50V
C116	1-124-905-11	ELECT	3.3MF	20%	50V	C513	1-162-284-31	CERAMIC	150PF	10%	50V
C117	1-124-477-11	ELECT	47MF	20%	25V	C514	1-162-284-31	CERAMIC	150PF	10%	50V
C118	1-136-162-00	FILM	0.056MF	5%	50V	C515	1-124-925-11	ELECT	2.2MF	20%	50V
C119	1-124-927-11	ELECT	4.7MF	20%	50V	C516	1-124-791-11	ELECT	1MF	20%	50V
C120	1-130-481-00	MYLAR	0.0068MF	5%	50V	C517	1-124-563-11	ELECT	2200MF	20%	25V
C121	1-130-476-00	MYLAR	0.0027MF	5%	50V	C518	1-124-471-00	ELECT	1000MF	20%	6.3V
C122	1-110-201-00	MYLAR	0.0033MF	5%	50V	C519	1-124-908-11	ELECT	22MF	20%	50V
C123	1-136-154-00	FILM	0.012MF	5%	50V	C601	1-124-472-11	ELECT	470MF	20%	10V
C124	1-136-153-00	FILM	0.01MF	5%	50V	C602	1-123-343-00	ELECT	33MF	20%	25V
C125	1-136-270-11	FILM	47PF	5%	630V	C603	1-124-477-11	ELECT	47MF	20%	25V
C126	1-136-273-91	FILM	75PF	5%	630V	C604	1-124-120-11	ELECT	220MF	20%	25V
C127	1-162-289-31	CERAMIC	390PF	10%	50V	C605	1-124-471-00	ELECT	1000MF	20%	6.3V
C128	1-136-159-00	FILM	0.033MF	5%	50V	C606	1-124-443-00	ELECT	100MF	20%	10V
C129	1-123-875-91	ELECT	10MF	20%	50V	C607	1-124-556-11	ELECT	2200MF	20%	16V
C130	1-123-875-91	ELECT	10MF	20%	50V	C609	1-124-443-00	ELECT	100MF	20%	10V
C131	1-161-374-11	CERAMIC	0.0015MF	20%	16V	C610	1-124-480-11	ELECT	470MF	20%	25V
C301	1-124-477-11	ELECT	47MF	20%	25V	CNP301	1-562-479-12	SOCKET, CONNECTOR 10P			
C302	1-124-477-11	ELECT	47MF	20%	25V	CNP901*1	1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
C303	1-124-477-11	ELECT	47MF	20%	25V	CNP902*1	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
C304	1-124-120-11	ELECT	220MF	20%	25V	CT301	1-141-225-00	CAP, TUNING, TRIMAR			
C305	1-124-791-11	ELECT	1MF	20%	50V	D101	8-719-940-76	DIODE 1SS132			
C306	1-124-443-00	ELECT	100MF	20%	10V	D102	8-719-940-76	DIODE 1SS132			
C307	1-124-925-11	ELECT	2.2MF	20%	50V	D201	8-719-940-76	DIODE 1SS132			
C308	1-129-705-00	FILM	0.0018MF	10%	630V	D202	8-719-940-76	DIODE 1SS132			
C309	1-129-898-00	FILM	0.0022MF	10%	630V	D301	8-719-940-76	DIODE 1SS132			
C310	1-130-062-00	FILM	0.0056MF	10%	630V	D302	8-719-940-76	DIODE 1SS132			
C311	1-123-381-00	ELECT	2.2MF	20%	50V						

ELECTRICAL PARTS		
Ref.No.	Part No.	Description
D303	8-719-940-76	DIODE 1SS132
D304	8-719-940-76	DIODE 1SS132
D305	8-719-940-76	DIODE 1SS132
D501	8-719-940-76	DIODE 1SS132
D502	8-719-940-76	DIODE 1SS132
D503	8-719-940-76	DIODE 1SS132
D504	8-719-940-76	DIODE 1SS132
D505	8-719-200-77	DIODE 10E2N
D506	8-719-940-76	DIODE 1SS132
D507	8-719-940-76	DIODE 1SS132
D508	8-719-940-76	DIODE 1SS132
D509	8-719-940-76	DIODE 1SS132
D510	8-719-940-76	DIODE 1SS132
D511	8-719-940-76	DIODE 1SS132
D512	8-719-303-84	DIODE SEL4914D-C
D513	8-719-303-74	DIODE SEL4114R-C
D514	8-719-303-79	DIODE SEL4414G-C
D515	8-719-303-79	DIODE SEL4414G-C
D516	8-719-303-79	DIODE SEL4414G-C
D517	8-719-303-79	DIODE SEL4414G-C
D518	8-719-200-77	DIODE 10E2N
D519	8-719-200-77	DIODE 10E2N
D520	8-719-940-76	DIODE 1SS132
D601	8-719-933-60	DIODE HZS9C2L
D602	8-719-933-43	DIODE HZS7A1L
D603	8-719-933-68	DIODE HZS1183L
D604	8-719-940-76	DIODE 1SS132
D605	8-719-940-76	DIODE 1SS132
HRP	X-3391-121-1	HEAD ASSY, ROTARY (with ERASE HEAD)
IC301	8-752-031-83	IC CXA1101P
IC302	8-759-800-92	IC LA3220
IC303	8-759-800-36	IC LA3160
IC304	8-759-145-58	IC UPC4558C
IC305	8-759-700-46	IC CX10034
IC501	8-759-207-96	IC TC9312N-044
IC502	8-759-602-47	IC M50761-417P
L101	1-408-929-00	MICRO INDUCTOR 27MMH
L102	1-408-924-00	MICRO INDUCTOR 10MMH
L201	1-408-929-00	MICRO INDUCTOR 27MMH
L202	1-408-924-00	MICRO INDUCTOR 10MMH
L301	1-408-080-00	MICRO INDUCTOR 100UH
L501	1-408-579-00	MICRO INDUCTOR 220UH
M501	X-3391-130-1	MOTOR ASSY, CAPSTAN
M502	X-3391-118-1	MOTOR ASSY, REEL
PM501	1-454-428-11	SOLENOID, PLUNGER

ELECTRICAL PARTS		
Ref.No.	Part No.	Description
Q101	8-729-806-38	TRANSISTOR 2SC3399
Q102	8-729-600-27	TRANSISTOR 2SC634SP
Q103	8-729-806-26	TRANSISTOR 2SC3901
Q104	8-729-806-26	TRANSISTOR 2SC3901
Q105	8-729-806-26	TRANSISTOR 2SC3901
Q106	8-729-600-27	TRANSISTOR 2SC634SP
Q201	8-729-806-38	TRANSISTOR 2SC3399
Q202	8-729-600-27	TRANSISTOR 2SC634SP
Q203	8-729-806-26	TRANSISTOR 2SC3901
Q204	8-729-806-26	TRANSISTOR 2SC3901
Q205	8-729-806-26	TRANSISTOR 2SC3901
Q206	8-729-600-27	TRANSISTOR 2SC634SP
Q301	8-729-806-28	TRANSISTOR 2SC3402
Q302	8-729-806-28	TRANSISTOR 2SC3402
Q303	8-729-600-27	TRANSISTOR 2SC634SP
Q304	8-729-600-27	TRANSISTOR 2SC634SP
Q305	8-729-801-93	TRANSISTOR 2SD1387
Q306	8-729-117-54	TRANSISTOR 2SA1175
Q307	8-729-806-28	TRANSISTOR 2SC3402
Q308	8-729-600-27	TRANSISTOR 2SC634SP
Q309	9-986-159-01	TRANSISTOR 2SA1348
Q310	9-986-159-01	TRANSISTOR 2SA1348
Q311	9-986-159-01	TRANSISTOR 2SA1348
Q501	8-729-801-83	TRANSISTOR 2SB1013
Q502	8-729-801-83	TRANSISTOR 2SB1013
Q503	8-729-801-93	TRANSISTOR 2SD1387
Q504	8-729-801-93	TRANSISTOR 2SD1387
Q505	8-729-180-92	TRANSISTOR 2SD809-K
Q506	8-729-600-27	TRANSISTOR 2SC634SP
Q507	8-729-801-93	TRANSISTOR 2SD1387
Q508	8-729-806-16	TRANSISTOR 2SA1346
Q509	8-729-801-93	TRANSISTOR 2SD1387
Q510	8-729-801-83	TRANSISTOR 2SB1013
Q511	8-729-600-27	TRANSISTOR 2SC634SP
Q512	8-729-806-16	TRANSISTOR 2SA1346
Q513	8-729-806-16	TRANSISTOR 2SA1346
Q514	8-729-806-28	TRANSISTOR 2SC3402
Q515	8-729-806-26	TRANSISTOR 2SC3901
Q516	8-729-117-54	TRANSISTOR 2SA1175
Q517	8-729-806-20	TRANSISTOR 2SA1345
Q518	8-729-600-27	TRANSISTOR 2SC634SP
Q519	8-729-117-54	TRANSISTOR 2SA1175
Q520	8-729-806-20	TRANSISTOR 2SA1345
Q601	8-729-111-67	TRANSISTOR 2SB1094-L
Q602	8-729-600-27	TRANSISTOR 2SC634SP

ELECTRICAL PARTS		
Ref.No.	Part No.	Description
Q603	8-729-600-27	TRANSISTOR 2SC634SP
Q604	8-729-600-27	TRANSISTOR 2SC634SP
Q605	8-729-107-25	TRANSISTOR 2SD1585-L
Q606	8-729-600-27	TRANSISTOR 2SC634SP
Q607	8-729-111-67	TRANSISTOR 2SB1094-L
Q608	8-729-600-27	TRANSISTOR 2SC634SP
Q609	8-729-600-27	TRANSISTOR 2SC634SP
Q901	8-719-902-01	PHOTO INTERRUPTOR SPI201
R101	1-249-437-11	CARBON 47K 5% 1/6W
R102	1-249-417-11	CARBON 1K 5% 1/6W
R103	1-249-421-11	CARBON 2.2K 5% 1/6W
R104	1-249-413-11	CARBON 470 5% 1/6W
R105	1-249-409-11	CARBON 220 5% 1/6W
R106	1-249-433-11	CARBON 22K 5% 1/6W
R107	1-249-429-11	CARBON 10K 5% 1/6W
R108	1-249-415-11	CARBON 680 5% 1/6W
R109	1-215-471-00	CARBON 120K 5% 1/6W
R110	1-249-405-11	CARBON 100 5% 1/6W
R111	1-215-438-00	CARBON 5.1K 5% 1/6W
R112	1-215-472-00	CARBON 130K 5% 1/6W
R113	1-249-430-11	CARBON 12K 5% 1/6W
R114	1-249-430-11	CARBON 12K 5% 1/6W
R115	1-215-477-00	CARBON 220K 5% 1/6W
R117	1-249-421-11	CARBON 2.2K 5% 1/6W
R118	1-249-429-11	CARBON 10K 5% 1/6W
R119	1-249-429-11	CARBON 10K 5% 1/6W
R120	1-249-421-11	CARBON 2.2K 5% 1/6W
R121	1-249-429-11	CARBON 10K 5% 1/6W
R122	1-249-417-11	CARBON 1K 5% 1/6W
R123	1-215-493-00	CARBON 1M 5% 1/6W
R124	1-249-437-11	CARBON 47K 5% 1/6W
R125	1-249-435-11	CARBON 33K 5% 1/6W
R126	1-249-441-11	CARBON 100K 5% 1/6W
R127	1-249-408-11	CARBON 180 5% 1/6W
R128	1-249-421-11	CARBON 2.2K 5% 1/6W
R129	1-249-413-11	CARBON 470 5% 1/6W
R130	1-249-429-11	CARBON 10K 5% 1/6W
R131	1-249-412-11	CARBON 390 5% 1/6W
R132	1-249-424-11	CARBON 3.9K 5% 1/6W
R133	1-249-430-11	CARBON 12K 5% 1/6W
R134	1-249-433-11	CARBON 22K 5% 1/6W
R135	1-249-421-11	CARBON 2.2K 5% 1/6W
R136	1-249-441-11	CARBON 100K 5% 1/6W
R137	1-249-441-11	CARBON 100K 5% 1/6W

ELECTRICAL PARTS		
Ref.No.	Part No.	Description
R301	1-215-493-00	CARBON 1M 5% 1/6W
R302	1-249-405-11	CARBON 100 5% 1/6W
R303	1-247-708-11	CARBON 470 5% 1/4W
R304	1-249-405-11	CARBON 100 5% 1/6W
R305	1-249-433-11	CARBON 22K 5% 1/6W
R306	1-215-460-00	CARBON 43K 5% 1/6W
R307	1-249-433-11	CARBON 22K 5% 1/6W
R308	1-249-433-11	CARBON 22K 5% 1/6W
R309	1-249-441-11	CARBON 100K 5% 1/6W
R310	1-249-425-11	CARBON 4.7K 5% 1/6W
R311	1-249-456-11	CARBON 5.6 5% 1/4W
R312	1-249-428-11	CARBON 8.2K 5% 1/6W
R313	1-249-428-11	CARBON 8.2K 5% 1/6W
R314	1-249-433-11	CARBON 22K 5% 1/6W
R315	1-249-430-11	CARBON 12K 5% 1/6W
R316	1-249-434-11	CARBON 27K 5% 1/6W
R317	1-249-429-11	CARBON 10K 5% 1/6W
R318	1-249-439-11	CARBON 68K 5% 1/6W
R319	1-249-423-11	CARBON 3.3K 5% 1/6W
R320	1-215-442-00	CARBON 7.5K 5% 1/6W
R321	1-249-423-11	CARBON 3.3K 5% 1/6W
R322	1-249-416-11	CARBON 820 5% 1/6W
R323	1-249-406-11	CARBON 120 5% 1/6W
R324	1-249-429-11	CARBON 10K 5% 1/6W
R325	1-249-399-11	CARBON 33 5% 1/6W
R326	1-249-432-11	CARBON 18K 5% 1/6W
R327	1-215-448-00	CARBON 13K 5% 1/6W
R328	1-215-436-00	CARBON 4.3K 5% 1/6W
R329	1-247-743-11	CARBON 220 5% 1/2W
R501	1-249-417-11	CARBON 1K 5% 1/6W
R502	1-249-417-11	CARBON 1K 5% 1/6W
R503	1-249-429-11	CARBON 10K 5% 1/6W
R504	1-249-417-11	CARBON 1K 5% 1/6W
R505	1-249-417-11	CARBON 1K 5% 1/6W
R506	1-249-429-11	CARBON 10K 5% 1/6W
R507	1-249-422-11	CARBON 2.7K 5% 1/6W
R508	1-215-418-00	CARBON 750 5% 1/6W
R509	1-247-706-11	CARBON 330 5% 1/4W
R510	1-249-433-11	CARBON 22K 5% 1/6W
R511	1-249-433-11	CARBON 22K 5% 1/6W
R512	1-249-405-11	CARBON 100 5% 1/6W
R513	1-249-417-11	CARBON 1K 5% 1/6W
R514	1-249-437-11	CARBON 47K 5% 1/6W
R515	1-249-417-11	CARBON 1K 5% 1/6W
R516	1-249-437-11	CARBON 47K 5% 1/6W

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R517	1-249-429-11	CARBON	10K	5%	1/6W
R518	1-249-429-11	CARBON	10K	5%	1/6W
R519	1-249-437-11	CARBON	47K	5%	1/6W
R520	1-249-417-11	CARBON	1K	5%	1/6W
R521	1-249-441-11	CARBON	100K	5%	1/6W
R522	1-249-436-11	CARBON	39K	5%	1/6W
R523	1-249-433-11	CARBON	22K	5%	1/6W
R524	1-249-418-11	CARBON	1.2K	5%	1/6W
R525	1-249-411-11	CARBON	330	5%	1/6W
R526	1-249-415-11	CARBON	680	5%	1/6W
R527	1-249-409-11	CARBON	220	5%	1/6W
R528	1-249-409-11	CARBON	220	5%	1/6W
R529	1-215-402-00	CARBON	160	5%	1/6W
R530	1-215-402-00	CARBON	160	5%	1/6W
R531	1-249-429-11	CARBON	10K	5%	1/6W
R532	1-249-437-11	CARBON	47K	5%	1/6W
R533	1-249-437-11	CARBON	47K	5%	1/6W
R534	1-249-433-11	CARBON	22K	5%	1/6W
R535	1-249-435-11	CARBON	33K	5%	1/6W
R536	1-249-441-11	CARBON	100K	5%	1/6W
R537	1-249-433-11	CARBON	22K	5%	1/6W
R538	1-249-433-11	CARBON	22K	5%	1/6W
R539	1-249-422-11	CARBON	2.7K	5%	1/6W
R540	1-249-441-11	CARBON	100K	5%	1/6W
R541	1-215-493-00	CARBON	1M	5%	1/6W
R542	1-249-433-11	CARBON	22K	5%	1/6W
R543	1-249-425-11	CARBON	4.7K	5%	1/6W
R544	1-249-432-11	CARBON	18K	5%	1/6W
R545	1-249-441-11	CARBON	100K	5%	1/6W
R546	1-249-429-11	CARBON	10K	5%	1/6W
R547	1-249-411-11	CARBON	330	5%	1/6W
R548	1-249-405-11	CARBON	100	5%	1/6W
R601	1-247-713-11	CARBON	1K	5%	1/4W
R602	1-247-717-11	CARBON	2.2K	5%	1/4W
R603	1-247-717-11	CARBON	2.2K	5%	1/4W
R604	1-247-717-11	CARBON	2.2K	5%	1/4W
R605	1-247-721-11	CARBON	4.7K	5%	1/4W
R606	1-249-465-11	CARBON	47K	5%	1/4W
R607	1-215-493-00	CARBON	1M	5%	1/6W
R608	1-247-713-11	CARBON	1K	5%	1/4W
RV101	1-230-630-11	RES, ADJ, CARBON	10K		
RV102	1-230-630-11	RES, ADJ, CARBON	10K		
RV201	1-230-630-11	RES, ADJ, CARBON	10K		
RV202	1-230-630-11	RES, ADJ, CARBON	10K		

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RY301	1-515-535-11	RELAY
S301	1-514-674-21	SWITCH, SLIDE (DOLBY NR)
S302	1-554-277-00	SWITCH, SLIDE (ISS 1)
S501	1-514-674-21	SWITCH, SLIDE (DIRECTION MODE)
S503	1-553-856-00	SWITCH, KEY BOARD (FWD)
S504	1-553-856-00	SWITCH, KEY BOARD (REV)
S505	1-553-856-00	SWITCH, KEY BOARD (REC MUTE)
S506	1-553-856-00	SWITCH, KEY BOARD (REC)
S507	1-553-856-00	SWITCH, KEY BOARD (PAUSE)
S508	1-553-856-00	SWITCH, KEY BOARD (REW)
S509	1-553-856-00	SWITCH, KEY BOARD (STOP)
S510	1-553-856-00	SWITCH, KEY BOARD (FF)
S511	1-570-720-11	SWITCH, PUSH (1 KEY) (FWD ERASE PROOF/CASSETTE HALF DET)
S512	1-570-720-11	SWITCH, PUSH (1 KEY) (70U/120U/REV ERASE PROOF)
S513	1-570-723-11	SWITCH, PUSH (1 KEY)(METAL)
S514	1-570-719-11	SWITCH, LEAF (PLAY)
S515	1-570-721-11	SWITCH, LEAF (DIRECTION)
T301	1-433-314-11	TRANSFORMER, BIAS OSCILLATION
X501	1-527-532-00	OSCILLATOR, CERAMIC

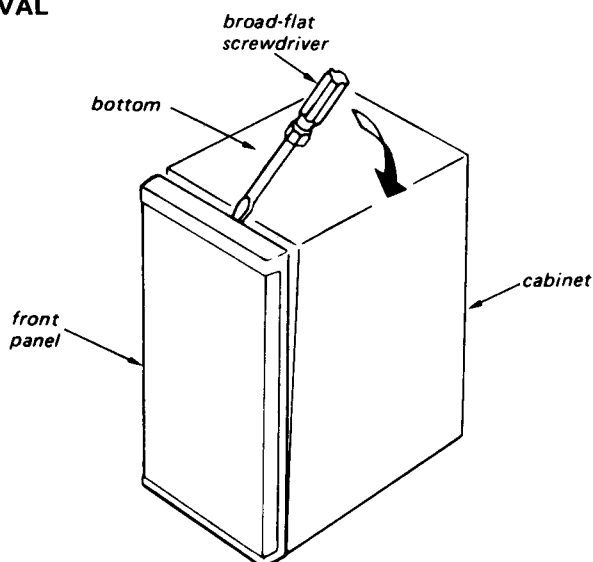
The components identified by shading and mark  are critical for safety. Replace only with part number specified.

FH-207
FH-211W
FH-215R

SPEAKER SYSTEM [APM-215]

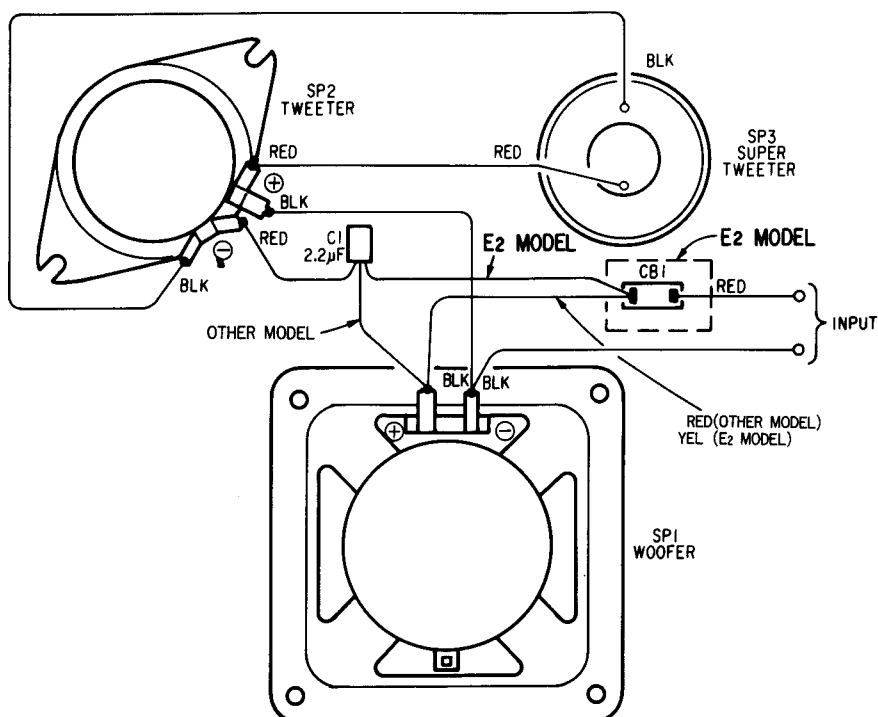
*US Model
AEP Model
UK Model
E Model*

1. DISASSEMBLY FRONT PANEL REMOVAL

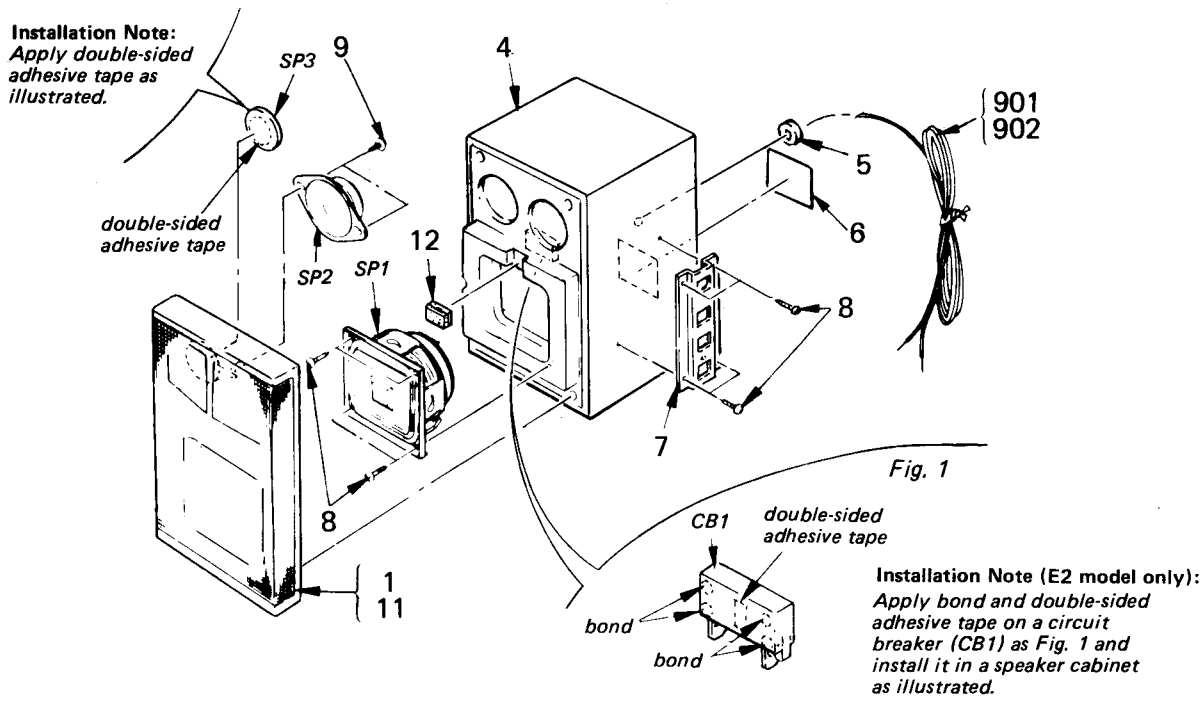


Note: Be careful not to scratch the cabinet.

2. WIRING DIAGRAM



3. EXPLODED VIEW AND PARTS LIST



				ELECTRICAL PARTS		
No.	Part No.	Description	Remarks	Ref.No.	Part No.	Description
1	X-4910-093-1	(US,AEP,UK)...PANEL(LEFT) ASSY, FRONT		901	1-559-268-11	(AEP,UK,E3,Saudi Arabia) ...CORD, SPEAKER (A)
	X-4910-096-1	(E2,E3,Saudi Arabia) ...PANEL(LEFT) ASSY, FRONT			1-559-269-11	(E2)...CORD, SPEAKER (B)
4	X-4910-301-1	(US,AEP,UK,E2,E3,Saudi Arabia) ...CABINET ASSY, SPEAKER			1-559-443-11	(US)...CORD, SPEAKER (D)
	X-4910-306-1	(G-AEP)...CABINET ASSY, SPEAKER		902	1-559-270-11	(E2)...CORD, SPEAKER (C) (YEL)
5	4-870-003-00	CLIPPER, CORD		C1	1-123-544-00	ELECT 2.2MF 20% 50V
6	*4-920-129-01	(E2)...LABEL, MODEL NUMBER		CB1	1-532-665-00	(E2)...CIRCUIT BREAKER (1.8A)
	*4-920-130-01	(AEP,UK)...LABEL, MODEL NUMBER		SP1	1-503-796-11	(US,AEP,UK)...SPEAKER (090A011)
	*4-920-131-01	(E3,Saudi Arabia)...LABEL, MODEL NUMBER		SP1	1-503-794-11	(E2,E3,Saudi Arabia) ...SPEAKER (090A010)
	*4-920-174-01	(US)...LABEL, MODEL NUMBER		SP2	1-503-795-11	SPEAKER, CONE (5CM)
7	4-920-144-01	PLATE (B), SIDE		SP3	1-529-053-11	BUZZER
8	4-874-614-11	SCREW (4) (3.5X14), TAPPING		ACCESSORY & PACKING MATERIAL		
9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 SLIT		3-701-690-00	(UK)...LABEL (MADE IN JAPAN)	
11	X-4910-094-1	(US,AEP,UK)...PANEL(RIGHT) ASSY, FRONT		3-769-112-11	(UK)...MANUAL, INSTRUCTION	
	X-4910-095-1	(E2,E3,Saudi Arabia) ...PANEL(RIGHT) ASSY, FRONT		4-920-121-01	(UK)...CUSHION	
12	*4-920-140-01	PACKING		4-920-150-01	(UK)...INDIVIDUAL CARTON	
				4-920-151-01	(UK)...SHEET, PROTECTION	